Replacement of Abortion by Contraception

In Three Central Asian Republics

The Policy Project

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Replacement of Abortion by Contraception in Three Central Asian Republics

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CHAPTER 1

INTRODUCTION

1.1 The Study

A revolution in the methods of fertility control is under way in parts of the former Soviet Union with the unmistakable substitution of contraception for abortion. Until recently, abortion had been the principal method of fertility control but the situation is changing rapidly. This report is an analysis of that process in three of the newly independent states in Central Asia—Kazakhstan, Uzbekistan, and the Kyrgyz Republic—based on data collected in national sample surveys conducted by the Demographic and Health Surveys (DHS) program between 1995 and 1997 and on Ministry of Health annual reports.

1.2 Background

Throughout the history of the Soviet Union, reliance on induced abortion as the main instrument of fertility control has been the result of a combination of liberal legislation on abortion and policies limiting the availability of contraception. As far back as 1920, the Soviet Union was the first country to legalize abortion and to provide free service to women in hospitals. The attitude of the government toward abortion changed from time to time, depending on the prevailing view on the need to increase the birthrate and the medical establishment's view of contraception, particularly oral contraceptives, which were regarded as unsafe (not without some justification, since the early high-dose pills had more serious side effects than later generations of oral contraceptives). Since attempts to increase the birthrate at various times proved unsuccessful, abortion was reinstated in 1955 as a legal method and had not been replaced by contraception for reasons of cost as well as health concerns. Moreover, in the 1980s there was an increase in vacuum aspirations, also known as mini-abortions.

Overall, the 1980s witnessed an increase in the incidence of vacuum aspiration mini-abortions, some localized attempts to increase the availability of modern contraceptives, official efforts to block such availability, the commercialization of the abortion industry, and a transition to local public health service departments.

With the widespread prevalence of abortion and the limited availability of modern contraceptive methods, a resistance to shifting from abortion to contraception developed in parts of the Soviet population, particularly among ethnic Russians. One estimate by Popov placed the preference for abortion over contraception as high as 25 percent in Moscow (Popov, 1990). One by-product of this acceptability of abortion is that the women in the former Soviet Union are far less reluctant to report their abortion histories than women in the West, where the phenomenon has been stigmatized and where surveys have consistently and seriously underestimated the level of abortion.

Because of the increasing popularity of mini-abortions, many of which occur outside the official health reporting system, official estimates of abortion rates have been regarded as substantially below actual levels. Around 1990, estimates of the total annual number of abortions in the Soviet Union ranged from 7 to 11 million. Taking into account the underreporting, Henshaw (1990) concluded that the abortion rate was 181 per 1,000 women of reproductive age, amounting to an average rate of 5 abortions per woman over a lifetime.

The replacement of abortion by contraception gathered momentum over the next five years as contraceptives became more available, and the abortion rate was estimated to have fallen substantially as the IUD and oral contraceptives were increasingly adopted. The IUD is the main method of contraception, although the pill and condom are also used. Sterilization, which has been adopted in other parts of the world, is uncommon.

It is against this background—a picture of very high abortion rates only recently giving way to contraception—that the data collected in the DHS surveys become so intriguing, especially since there is reason to believe that the reporting of abortion is fairly reliable in the countries under study.

1.3 Three Countries in Demographic Perspective

The three countries in this study became independent states in 1991, shortly after the collapse of the Soviet Union. Uzbekistan has the largest population, some 24 million; Kazakhstan has 16 million; and the Kyrgyz Republic has nearly 5 million. The rates of natural increase vary considerably with Kazakhstan, which is nearing the end of the demographic transition, having an annual rate of natural increase of 0.5 percent and a total fertility rate (TFR) estimated at 2.0 births per woman (Table 1.1). Uzbekistan and the Kyrgyz Republic have current TFRs estimated at 3.3 and 3.0, respectively. Kazakhstan also has the highest proportion living in cities and the highest annual per capita income. Life expectancy at birth is quite similar in the three countries, ranging from 66 to 70 years. Uzbekistan and the Kyrgyz Republic have predominantly Muslim populations (around 90 percent) while only half of the women in Kazakhstan are Muslim. The proportion of ethnic Russian women of reproductive age estimated by the DHS surveys is 35 percent in Kazakhstan, 12 percent in the Kyrgyz Republic, and 4 percent in Uzbekistan (National Institute of Nutrition and Macro International Inc., 1996; Institute of Obstetrics and Gynecology and Macro International Inc., 1997; Research Institute of Obstetrics and Gynecology and Macro International Inc., 1998).

Table 1.1 Population statistics for Kazakhstan, Uzbekistan, and the Kyrgyz Republic, from selected sources

Statistic	Kazakhstan	Uzbekistan	Kyrgyz Republic
Total 1997 population (millions)	16.4	23.7	4.6
Rate of natural increase	0.5	2.1	1.6
Projected 2025 population (millions)	20.0	35.7	6.3
Total fertility rate	2.0	3.3	3.0
Life expectancy at birth	69	70	66
Percent urban[1]	56	38	35
Per capita GNP (US$)	1,330	970	700
Percent Muslim[1]	51	95	86
Percent Russian[1]	35	4	12

[1] Based on DHS data (women 15-49)
Source: Population Reference Bureau, *1997 World Population Data Sheet*

1.4 Specific Objectives

The main focus of this work is the replacement of abortion by contraceptive use in Kazakhstan, Uzbekistan, and the Kyrgyz Republic. Analysis of trends in abortion rates as derived from the DHS data as well as from official Ministry of Health statistics, and the trends in contraceptive use, which are more difficult to derive, provide the demographic framework within which the behavior of individual women is analyzed. Although the published DHS reports for these countries have included tabulations of the main covariates of abortion and contraceptive use, there have been no multivariate analyses to sort out the relative independence and strength of factors associated with either form of fertility control. For example, are ethnic differences in the use of abortion independent of religious differences in the population? How important are regional differences when education is held constant?

Another focus is how women of reproductive age use abortion. Is abortion used primarily for spacing or for limiting births? What is the typical pattern of reliance on abortion? Are first, second, or later pregnancies more likely to be terminated? To what extent is contraceptive failure associated with abortion? Is the younger generation more likely to adopt contraception in the early stages of childbearing? In the Kyrgyz Republic where the opportunity arose to include some questions on the choice between the two methods, we are able to explore some of the psychodynamics of that choice. In all three countries, we analyze the reasons for not using contraception or for not intending to use a contraceptive method.

Toward the end of this report, a model to forecast the abortion rate is presented. This model divides the population into different categories of contraceptive users and nonusers and estimates their relative contributions to the overall abortion rate. Different future scenarios are presented with interactive changes among the components that lead to projections of different abortion rates. This approach facilitates estimation of the effects on the abortion rate that would occur assuming changes in contraceptive use and assumptions about different contraceptive failure rates.

1.5 DHS Sample Designs

The surveys in Kazakhstan, Uzbekistan, and the Kyrgyz Republic were conducted during the summer and fall of 1995, 1996, and 1997, respectively. Each survey employed a nationally representative, multi-stage probability sample of women between the ages of 15 and 49. The information for the development of the sampling frames was provided by the National Statistical Offices and the Ministries of Health. Details of the sample designs are published elsewhere (National Institute of Nutrition and Macro International Inc., 1996; Institute of Obstetrics and Gynecology and Macro International Inc., 1997; Research Institute of Obstetrics and Gynecology and Macro International Inc., 1998).

For the purpose of sampling, each country was stratified into regions (5 for Kazakhstan and Uzbekistan and 4 for The Kyrgyz Republic) and further stratified within region by urban-rural residence. In the case of Kazakhstan, a total of 4,480 households were selected from 176 sampling areas. The number of women interviewed was 3,771. In Uzbekistan, a total of 3,945 households were selected from 164 sampling areas. Interviews were completed with 4,415 women. In the Kyrgyz Republic, a total of 3,821 households were selected from 168 sampling areas. Interviews were completed with 3,848 women.

The sample designs can be assessed in terms of sampling error. A statistic of importance to this study is the general abortion rate (GAR), which is the annual number of abortions per 1,000 women of reproductive age. Estimates for the general abotion rate and their standard errors are as follows: 53 (±4) for Kazakhstan, 19 (±2) for Uzbekistan, and 46 (±3) for the Kyrgyz Republic. The sampling errors are within tolerable limits.

CHAPTER 2

PREVALENCE AND TRENDS IN ABORTION AND CONTRACEPTION

2.1 Prevalence of Abortion

The percentage of pregnancies that end in abortion is 38 in Kazakhstan, 14 in Uzbekistan, and 27 in the Kyrgyz Republic (Table 2.1). The total abortion rate—a measure of the total number of abortions women would have over their reproductive years if they experienced the age-specific abortion rates of the past three years—is 1.75 in Kazakhstan, 1.55 in the Kyrgyz Republic, and 0.67 in Uzbekistan (Table 2.2). The rates at the younger ages show the same rank order, but above age 30 the abortion rates are slightly higher in the Kyrgyz Republic than in Kazakhstan.

Table 2.1 percent distribution of pregnancies terminating in the three years preceding the survey, by type of outcome, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Country	Live birth	Induced abortion	Miscarriage or stillbirth	Total
Kazakhstan 1993-95	54.0	37.7	8.3	100.0
Uzbekistan 1994-96	80.0	13.7	6.4	100.0
Kyrgyz Republic 1995-97	62.9	27.2	9.8	100.0

Table 2.2 Abortion rates for the three years preceding the survey, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Abortion rate		
Age	Kazakhstan 1993-95	Uzbekistan 1994-96	Kyrgyz Republic 1995-97
15-19	15	2	6
20-24	78	18	57
25-29	104	32	77
30-34	75	36	81
35-39	50	23	58
40-44	18	15	22
45-49	10	7	10
Total abortion rate 15-49	1.75	0.67	1.55
General abortion rate 15-49	53	19	46

Total abortion rate is the number of abortions per woman based on age-specific abortion rates for women 15-49.
General abortion rate is the number of abortions per thousand women age 15-49.

The abortion rates in Kazakhstan and in the Kyrgyz Republic are high by international standards and are typical of other parts of the former Soviet Union (RCPOMR, CDC, and USAID, 1997; Serbanescu and Morris, 1998) and some countries of Eastern Europe. Of course, there is very incomplete reporting in other regions of the world and abortion rates may be at this level, for example, in parts of Latin America. Indirect estimates based on adjusted hospitalization data indicate comparable levels in Peru, Chile, and the Dominican Republic; Cuba also has a high abortion rate. The lower rate in Uzbekistan is at the same level as that for the United States, but there the majority of abortions are among young, unmarried women, while in Uzbekistan and the other countries in this region, abortions are almost entirely among married women.

2.2 Comparison of DHS and Ministry of Health Abortion Estimates

Abortion statistics are notoriously difficult to estimate with confidence in their accuracy. This includes both official registration and survey data. Most countries do not record such information and those that do are well aware of the incompleteness of the reporting systems. The typical problems of government sources relate to the legality of the procedure, to the mixture of public and private services, and to the quality and comprehensiveness of the health registration system in general. In the three Central Asian countries in this analysis, the quality of the abortion data seems unusually high (McCallister, 1998). This is because abortion is not only legal and widespread in these countries, but was the principal method of fertility control in the recent past in the Soviet Union. Abortion reporting benefits both from the absence of social stigma (that is associated with the method in many parts of the world) and the organization of the general health registration system.

The completeness of the reporting of abortions in the three DHS surveys also seems impressive, given the long history of the inadequacy of surveys to capture this behavior. This undoubtedly reflects women's willingness to report abortions in a society where it has been legal, acceptable, and available.

The general abortion rate (GAR)—the number of abortions per 1,000 women age 15-49 averaged over the preceding three years—is shown for both sources of data in Table 2.3. In Kazakhstan, the rates are essentially indistinguishable; in Uzbekistan, the DHS survey shows a rate slightly higher than the MOH rate; but in the Kyrgyz Republic, the DHS estimate for the GAR is 46 compared with 31 for the MOH. The most likely explanation for this discrepancy is that abortions involving fee-for-services are not reported in the official system but are reported in the DHS interviews. One knowledgeable health official in the country said that abortions outside the reporting system could well account for a difference of this magnitude. Why the gap does not appear in Kazakhstan is not clear; perhaps it is because the practice is increasing and was not reflected in the Kazakhstan survey which was conducted in 1995.

Table 2.3 General abortion rates (three-year period) based on DHS data and Ministry of Health (MOH) data, Kazakhstan, Uzbekistan, and The Kyrgyz Republic

Country	General abortion rate	
	DHS	MOH
Kazakhstan, 1993-95	53	55
Uzbekistan, 1993-95	19	16
Kyrgyz Republic, 1994-96	46	31

Note: *General abortion rate* is the number of abortions per thousand women age 15-49.

2.3 Contraceptive Prevalence

The two sources of data on the prevalence of contraceptive use in the three countries are DHS survey data and information collected by the ministries of health. The DHS data include all methods of contraception including traditional methods, while the government reporting system includes only data on the IUD, the pill and, more recently, injectables. Family planning services in these countries are the responsibility of the national ministries of health, which maintain a broad spectrum of activities including family planning education and the provision of contraceptive supplies.

These services are provided mostly through primary health care institutions, such as women's counseling centers of urban polyclinics, delivery hospitals, central rural hospitals, and doctor's assistant posts. Each of these latter institutions is responsible for particular clusters of population, usually between 500 and 3,000 households. A physician or doctor's assistant is responsible for the regular counseling of women on the selection and use of contraceptive methods. The main contraceptive services are the insertion of IUDs and the prescription of oral contraceptives. This information is recorded for each health care block and is summarized annually and forwarded to the national ministry of health. At this level, information on the number of abortions performed, the number of IUDs inserted, and the number of pill prescriptions filled, is tabulated and published in an annual series.

When compared with DHS estimates, the IUD estimates from these sources are reasonably close, especially in Uzbekistan and in the Kyrgyz Republic (Table 2.4). Pill use is reported at a higher level in the MOH system than in the DHS surveys, ranging from 3 to 5 percent in the former and slightly over 1 percent in the latter. The explanation for the higher rates in the MOH data—a pattern that is also evident for the IUD—probably lies in the difference between the two sources of information. The DHS data reflect a point-in-time estimate whereas the MOH data may be more susceptible to including women who have discontinued a method.

The main reason for concern about the consistency of data from the two sources is that the MOH data offer a basis for assessing trends over time in the use of contraception, while the DHS data (without a monthly calendar) are more limited in this respect. Thus, the consistency of prevalence estimates for time periods available from both sources is a necessary step in justifying the use of MOH sources for documenting trends in contraceptive use.

Table 2.4 Estimates of contraceptive prevalence for all women age 15-49 from DHS and MOH data, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Contraceptive prevalence		
Method	Kazakhstan 1995	Uzbekistan 1996	Kyrgyz Republic[1] 1997
IUD			
DHS	27.9	32.6	27.6
MOH	33.2	33.5	26.6
Pill			
DHS	1.5	1.2	1.2
MOH	3.3	5.2	4.7
Injectables			
DHS	0.8	1.0	0.9
MOH	u	2.1	1.5
Condom			
DHS	3.4	1.2	4.1
Traditional methods			
DHS	9.6	3.0	7.5
All methods[2]			
DHS	43.3	39.6	42.8

u = Unknown (not available)
[1] MOH data are for 1996
[2] Includes sterilization

Based on the DHS data for all contraceptive methods, the contraceptive prevalence rate (CPR) for all women in the three countries is around 40 percent, and is between 56 and 59 percent for currently married women, the more familiar and conventional statistic (National Institute of Nutrition and Macro International Inc., 1996; Institute of Obstetrics and Gynecology and Macro International Inc., 1997; Research Institute of Obstetrics and Gynecology and Macro International Inc., 1998). This level is comparable with that of other countries where DHS data have recently been collected such as Bangladesh, Egypt, and Indonesia.

2.4 Trends in Contraceptive Use and in Abortion

In this study, for the analysis of trends in the use of abortion and contraception, we rely primarily on the annual registration data from the MOH in each country. As noted above, these data on contraceptive prevalence include only the IUD, the pill, and injectables (the latter is not included in the Kazakhstan series). We have confidence in the general level of the official data on the use of these methods and assume that whatever problems exist in the reporting system are the same for each year.

There is clear evidence of an upward trend in the use of these methods in all three countries (Table 2.5 and Figure 2.1). Between 1991 and 1996 the percentage of women age 15-49 currently using these methods increased by 30 percent in Kazakhstan, by 38 percent in Uzbekistan (between 1992 and 1996), and by 50 percent in the Kyrgyz Republic. There is no way of estimating trends in the use of other contraceptive methods; however, use of condoms may have increased and use of traditional methods such as withdrawal and periodic abstinence may have declined with the substitution of modern methods.

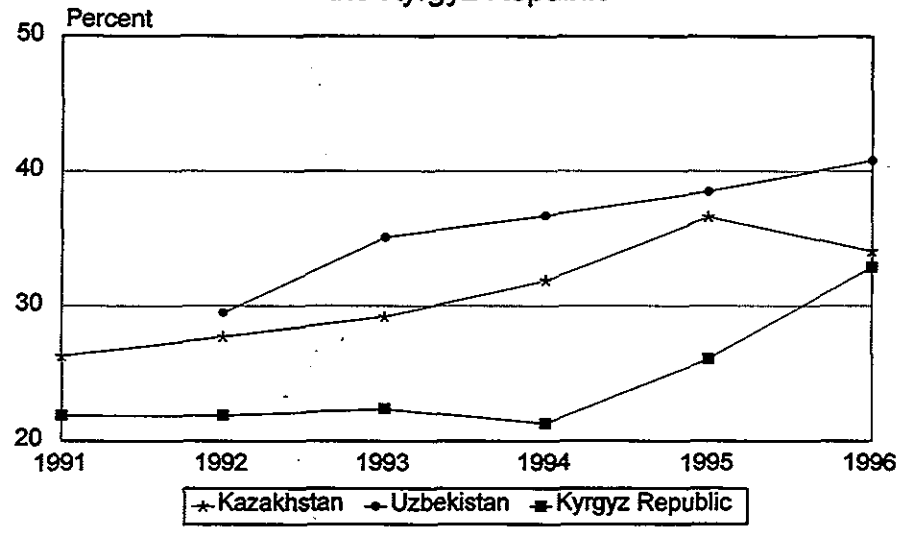
Another perspective that indicates an increase in contraceptive use in these populations is the recent sharp decline in the fertility rate itself. Since there is no evidence for an increase in age at marriage or age at sexual initiation or in the duration of postpartum insusceptibility or for any decrease in coital frequency, the only plausible explanation for the decline in fertility is the increased use of contraception. In theory, the decline could be caused by an increase in abortion, however, none of the evidence points in this direction. In fact, all of the indicators point in the opposite direction.

Table 2.5 Percentage of women age 15-49 using the IUD, the pill, or injectables during the period 1991 to 1996, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Use of the IUD, pill, or injectables		
Year	Kazakhstan[1]	Uzbekistan	Kyrgyz Republic
1991	26.3	u	21.9
1992	27.7	29.5	21.9
1993	29.2	35.1	22.4
1994	31.9	36.7	21.3
1995	36.6	38.5	26.1
1996	34.1	40.8	32.9

u = Unknown (not available)
[1] Injectables not included
Source: Ministry of Health in each country

Figure 2.1 Recent trends in the use of the IUD, the pill and injectables combined, Kazakhstan, Uzbekistan, and the Kyrgyz Republic



Note: The series for Kazakhstan is limited to the IUD and the pill.

Source: Ministries of Health

Trends in induced abortion rates can be analyzed both with the DHS data and with the official MOH reporting system. One approach using DHS data (Table 2.6) is to compare the average number of abortions among women who have essentially reached the end of their reproductive years (age 40-49) with the total abortion rate (TAR), which estimates the average number of abortions currently experienced by women of all ages. In Kazakhstan, for example, the TAR shows a decline from 2.6 to 1.8 abortions per woman. The direction is the same for the two other countries, but the magnitude of the decline is not as great.

Table 2.6 Trends in the prevalence of abortion based on two measures, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

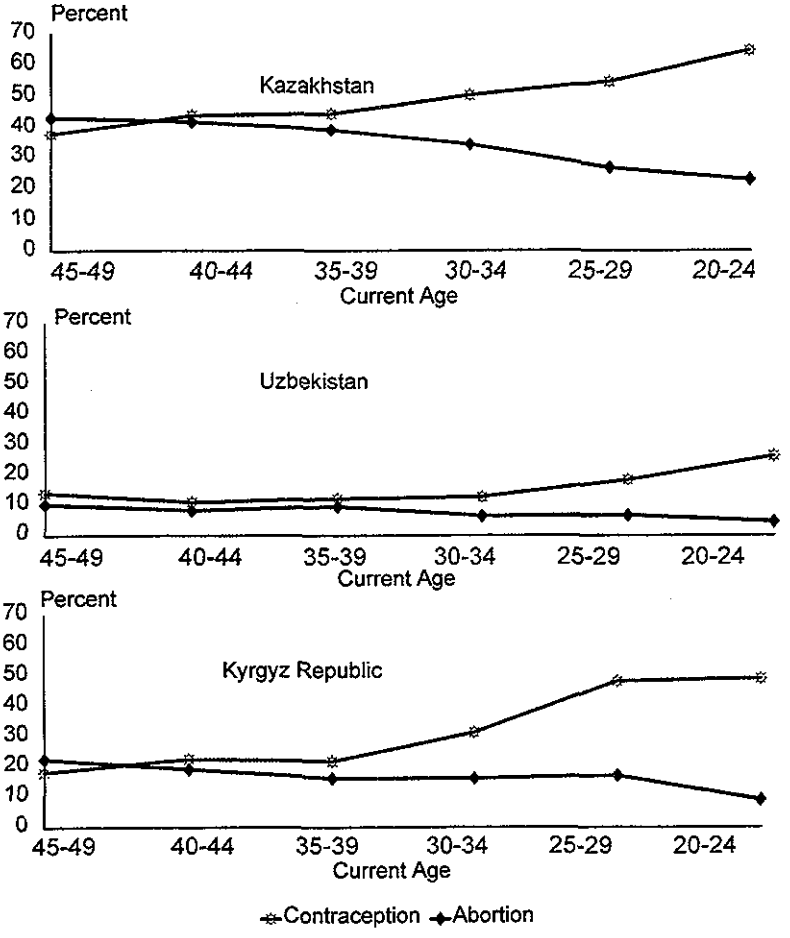
	Prevalence of abortion		
Measure	Kazakhstan	Uzbekistan	Kyrgyz Republic
Mean number of abortions among women 40-49	2.59	0.82	1.63
Total abortion rate in last 3 years	1.75	0.67	1.51

Another approach to detecting trends in contraceptive use and in abortion is to determine whether contraception is being adopted earlier and abortion later during the reproductive years. Since use of either method is rare prior to the first birth, we examine first use of contraception after this event. The evidence (Table 2.7) supports the generalization that contraception is increasingly initiated at younger ages, while abortion is less likely to be used at younger ages. These trends are stronger in Kazakhstan and in the Kyrgyz Republic than in Uzbekistan (Figure 2.2). In Kazakhstan, 64.5 percent of women age 20-24 first used a method of contraception before their second child compared with 37.7 percent of women age 45-49. In contrast, first use of abortion before the second child declined from 43.2 percent in the oldest age group to 22.7 percent for women age 20-24.

Table 2.7 Percentage of women (who ever had sex) who first used contraception or who had a first abortion before they had *two* children, by current age, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Kazakhstan		Uzbekistan		Kyrgyz Republic	
Age	Contraception	Abortion	Contraception	Abortion	Contraception	Abortion
20-24	64.5	22.7	26.3	4.4	49.1	8.9
25-29	54.6	26.5	18.4	6.5	48.2	17.0
30-34	50.4	34.1	12.6	6.3	31.4	16.0
35-39	44.4	39.2	12.0	9.4	21.7	16.0
40-44	43.0	41.8	10.9	8.1	22.5	19.1
45-49	37.7	43.2	13.9	10.1	18.0	22.4

Figure 2.2 Generational changes in the percentage of women who first used contraception or abortion before the second child, Kazakhstan, Uzbekistan, and the Kyrgyz Republic



In Table 2.8, trends in the GAR over a decade, derived from both sources, are shown for the three countries. The decline in the abortion rate is evident but is probably exaggerated in the MOH series because of recent unreported abortions[1]. This problem seems particularly acute in the Kyrgyz Republic. There is probably also some underreporting of abortions in the DHS surveys for the earlier period since these are based on pregnancies reported further in the past. Another factor that would contribute to a decline in the abortion rate as reported by the MOH is a significant out-migration of ethnic Russians, who have an abortion rate nearly twice that of the Kyrgyz population.

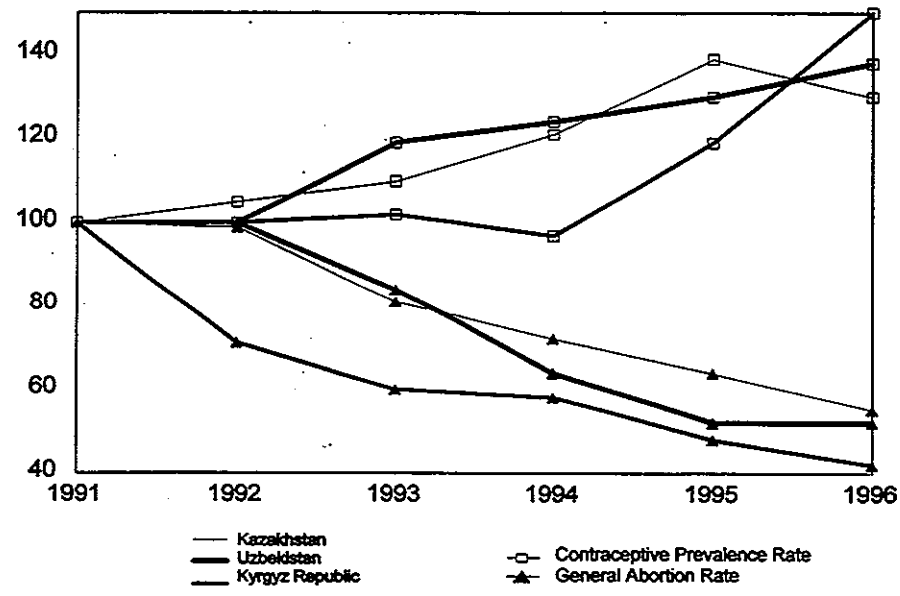
Table 2.8 Trends in the general abortion rate from two sources, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Country	General abortion rate	
	DHS	MOH
Kazakhstan		
1986-90	71	75
1993-95	57	55
Percent decline	20	27
Uzbekistan		
1986-90	29	34
1993-95	20	16
Percent decline	31	53
Kyrgyz Republic		
1987-91	50	59[a]
1994-96	46	31
Percent decline	6	47

[a] Estimated miscarriages deleted

Trends in the use of modern contraceptive methods (the IUD, pill, and injectables) and in abortion rates (from the MOH series) are shown together in Figure 2.3 for the period 1991 to 1996. It is clear that the two types of fertility control are moving in opposite directions. However, as noted, the decline in the abortion rate, especially in the Kyrgyz Republic, is probably exaggerated.

Figure 2.3 Trends in abortion and contraception, Kazakhstan, Uzbekistan, and the Kyrgyz Republic



Note: Contraception is limited to the IUD, the pill and injectables. Source: Ministries of Health

[1]Nevertheless, it should be stated that a careful study of clinic records at one of the primary providers of abortion services in Bishkek City, the Marriage and Family Guidance Consultation Clinic, indicated a 46 percent decline in abortions between 1995 and 1996 (Doolotova and Ahmad, 1998). These findings tend to support the sharp decline in abortion levels documented in the MOH data.

CHAPTER 3

COVARIATES OF ABORTION AND CONTRACEPTIVE BEHAVIOR

3.1 Demographic Correlates

The percentage of women who have ever had an abortion increases with age (Table 3.1). In Kazakhstan this figure reaches nearly 70 percent by the end of the reproductive years, but in Uzbekistan, it plateaus by age 35-39 and peaks at about one-third of the population. In the Kyrgyz Republic, it ultimately reaches nearly 60 percent. The proportion of women who have ever used contraception also reaches its peak in the thirties, but drops off after that age, presumably a combination of generational differences and, perhaps, problems of recall. In Kazakhstan and in the Kyrgyz Republic, 87 to 88 percent of women have ever used a method of contraception by age 30-34 while in Uzbekistan the peak is 81 percent by age 35-39. In general, older women—who are less exposed to the risk of an unintended pregnancy and for whom contraception was less available when they were younger—may be less likely to use a contraceptive method and more likely to depend on abortion for the occasional unintended pregnancy.

Table 3.1 Percentage of women who have ever used abortion and percentage who have ever used contraception (among women who ever had sex), by current age, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Ever used abortion			Ever used contraception		
Age	Kazakhstan	Uzbekistan	Kyrgyz Republic	Kazakhstan	Uzbekistan	Kyrgyz Republic
15-19	4.5	0.0	3.7	58.3	15.9	43.8
20-24	25.3	5.3	12.3	73.0	44.0	64.4
25-29	37.0	14.1	30.6	81.0	66.6	82.1
30-34	56.2	22.4	41.0	87.0	78.8	88.1
35-39	65.7	34.4	49.6	85.2	80.9	88.5
40-44	67.6	31.1	55.5	86.9	74.7	86.3
45-49	68.9	36.5	59.1	76.4	66.9	83.2
All ages	51.6	21.0	38.4	81.1	66.1	80.8

3.2 Use of One or Both Methods

In Kazakhstan (Table 3.2), the modal category is those women who have used both contraception and abortion (accounting for 48 percent of all women who have ever had sex). In the other two countries, women are concentrated in the contraceptive-use-only category. The proportion of women in Uzbekistan who have never used either method (31 percent) is twice that of either of the other two countries. The reason for the discrepancy lies partly in the fact that the number of children desired is significantly lower in Kazakhstan. Only 3 percent or less of women in all three countries have used only abortion.

Table 3.2 Percent distribution of women who have ever had sex by use of abortion and/or contraception, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Use of abortion/ contraception	Kazakhstan	Uzbekistan	Kyrgyz Republic
Used neither (had sex)	15.4	30.8	17.4
Used only abortion	3.5	3.1	1.8
Used only contraception	33.0	48.1	44.2
Used both methods	48.0	18.0	36.6
Total	100.0	100.0	100.0

3.3 Characteristics of Women Who Have Ever Used Either or Both Methods of Fertility Control

In all three countries, the average age of women who have used only contraception is substantially younger than that of women who have used only abortion or those who have used both methods (Table 3.3). This supports the trend (discussed above) toward the adoption of contraception by younger women. The same pattern of the adoption of contraception can be seen in the mean duration of marriage (i.e., number of years since first marriage) among ever-married women.

As expected, the average number of pregnancies is higher for women who have used abortion than for those who have used only contraception. It is highest for those who have used both methods, perhaps indicating greater efforts to control fertility. The pattern for live births is quite different, and is more uniform across the three categories.

The fact that the mean number of pregnancies is lower for women who have used only contraception compared with the other two categories, but is about the same for live births, suggests that the average number of children desired is similar across the three groups; and, indeed it is.

The percentage of women classified as infecund is high among those who have used only abortion, and exceeds 60 percent in all three countries. This reflects, in part, the demographic effect of the older generation, and may also have been influenced by repeat abortions. However, in all three countries, the average number of abortions is greatest among women who have used both methods (data not shown).

Women who have used abortion alone or abortion and contraception are more likely to live in urban areas than women who have used only contraception. This probably reflects both the greater availability of abortion facilities in cities and the preference of urban women for fewer children.

Automobile ownership, an indicator of wealth, seems to be higher among women who have used both methods and lower among those who have used only abortion.

Russian ethnicity is known to be associated with the use of abortion and this is confirmed in Table 3.3 (Agadjanian and Qian, 1997). This association is further highlighted in Table 3.4 where abortion rates and other measures of reproductive behavior are shown for the two countries with significant ethnic Russian minorities (35 percent in Kazakhstan and 11 percent in the Kyrgyz Republic). The various measures of abortion are substantially higher for Russian women than for women in the majority populations. The total abortion rate (TAR) for Russian women in Kazakhstan is 2.75 compared with 1.11 for Kazak women; in the Kyrgyz Republic, the rate for Russian women is 2.25 compared with 1.25 for Kyrgyz women. The proportion using contraception is also higher for Russian women in both countries, but the ethnic differences are not as great as for abortion. Part of the reason for the ethnic differences is that Russian women want fewer children, as shown in the bottom row of Table 3.4. In general, these various indicators are very similar in the Kazak and Kyrgyz populations and in the Russian populations in both countries. The estimates for contraceptive prevalence and for abortion among Russian women in these countries are similar to those among women who were recently surveyed in three Russian cities (Russian Centre for Public Opinion and Market Research, CDC, and USAID, 1998).

Table 3.3 Demographic characteristics of women in Kazakhstan, Uzbekistan, and the Kyrgyz Republic who ever used contraception and/or abortion

Characteristic	Used only abortion	Used only contraception	Used both
Mean age			
Kazakhstan	37.8	30.4	36.4
Uzbekistan	36.7	32.3	36.5
Kyrgyz Republic	38.0	31.3	36.1
Mean years of marriage[1]			
Kazakhstan	17.3	10.0	15.8
Uzbekistan	16.2	12.3	16.1
Kyrgyz Republic	17.4	11.3	15.7
Mean number of pregnancies			
Kazakhstan	5.0	2.5	5.8
Uzbekistan	5.2	3.6	5.9
Kyrgyz Republic	5.4	3.6	6.1
Mean number of live births			
Kazakhstan	2.1	2.2	2.4
Uzbekistan	3.3	3.4	3.6
Kyrgyz Republic	3.2	3.2	3.3
Mean number of children desired			
Kazakhstan	2.7	2.8	3.2
Uzbekistan	3.8	3.8	3.7
Kyrgyz Republic	3.9	4.0	3.7
Percent infecund			
Kazakhstan	71.3	4.1	7.0
Uzbekistan	61.1	3.1	6.1
Kyrgyz Republic	63.1	5.6	8.0
Percent Russian			
Kazakhstan	61.2	40.2	70.7
Uzbekistan	16.6	5.7	22.8
Kyrgyz Republic	13.2	11.2	26.8
Percent urban			
Kazakhstan	67.9	50.4	68.6
Uzbekistan	47.0	34.7	59.1
Kyrgyz Republic	29.6	26.6	46.0
Percent own a car			
Kazakhstan	17.7	24.3	30.6
Uzbekistan	21.5	24.3	33.8
Kyrgyz Republic	18.4	22.6	30.7

[1] For women who have ever been married

Table 3.4 Reproductive behavior of the Russian and the majority populations in Kazakhstan and the Kyrgyz Republic

	Kazakhstan			Kyrgyz Republic		
	Total	Kazakh	Russian	Total	Kyrgyz	Russian
Percent of population	100[a]	45.0	34.7	100	61.6	11.1
Reproductive behavior						
Total abortion rate	1.75	1.11	2.74	1.55	1.25	2.25
Percent of recent pregnancies aborted	37.7	23.4	57.8	27.2	21.8	57.9
Percent ever had an abortion	41.3	25.0	60.7	30.2	25.3	55.2
Percent currently using contraception[b]	59.1	53.5	65.1	59.5	55.8	71.8
Mean ideal number of children	2.94	3.42	2.38	3.67	4.00	2.35

[a] Includes other minority populations
[b] Based on currently married women

3.4 Multivariate Analyses

These covariates of abortion and of contraceptive behavior have thus far been analyzed individually. Since many are themselves intercorrelated, the next task is to determine their relative independence and strength when analyzed simultaneously. For example, is the association between Russian ethnicity and abortion independent of interrelations with religion, urban residence, education and other factors? The first variable examined is whether the woman has ever had an abortion. The analysis is confined to women who have ever had sex. The covariates are those examined above, plus other life cycle and socioeconomic measures. The multivariate logistic regression procedure is used and the results are presented in terms of odds ratios.

3.4.1 Ever Use of Abortion

In all three countries, the odds of ever having had an abortion increase with age, with the number of children ever born, and with the desire to terminate childbearing—i.e., have no more children (Table 3.5). Of particular interest is the strong association with contraceptive use, which probably reflects the intensity of the motivation to control fertility as well as method failure. In the Kyrgyz Republic for example, the odds of having had an abortion are five times greater if the woman has ever used contraception than if no method was used.

Other covariates with significant effects that are common to the three countries are whether the wife is currently working and her economic status. Women who are working are more likely to have had an abortion as are wealthier women (the sum of whether or not a car, a refrigerator, and a telephone are owned). Russian ethnicity retains its predictive power in Kazakhstan and Uzbekistan independent of other covariates, increasing the odds of having had an abortion to between two and three times those of the major ethnic group. In the Kyrgyz Republic, however, the main covariate seems to be the Muslim religion.

The remaining common covariates include urban residence, which significantly increases the odds of having had an abortion, plus a variety of strong regional associations.

In general, a similar pattern of covariates relates to the experience of ever having had an abortion in all three countries.

Table 3.5 Odds ratios of ever having had an abortion for women who ever had sex, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate	Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)	1.07	1.05	1.07
Children ever born			
Less than 2	1.00	1.00	1.00
2	2.71	1.97	2.52
More than 2	2.03	2.20	2.20
Want more children			
Yes	1.00	1.00	1.00
No	1.40	1.43	1.19
Know source of method			
No	1.00	1.00	1.00
Yes	1.35	ns	ns
Ever used a method			
No	1.00	1.00	1.00
Yes	4.16	2.31	5.05
Family planning media exposure (index)	1.07	ns	1.15
Mass media exposure			
Reads newspapers/magazines	ns	ns	1.23
Watches television regularly	ns	ns	1.34
Listens to radio regularly	0.73	ns	ns
Years of schooling	ns	1.05	ns
Currently working			
No	1.00	1.00	1.00
Yes	1.28	1.38	1.44
Wealth (index)	1.09	1.16	1.22
Religion			
Other	1.00	1.00	1.00
Muslim	ns	ns	0.40
Ethnicity			
(Kazak) (Uzbek) (Kyrgyz)	1.00	1.00	1.00
Russian	2.25	2.86	ns
Residence			
Rural	1.00	1.00	1.00
Urban	1.70	1.38	1.71
Region			
Kazakhstan / **Uzbekistan** / **Kyrgyz Republic**			
South / 2 / East	1.00	1.00	1.00
Almaty / Tashkent / Bishkek	1.69	3.19	2.26
West / 1 / North	ns	1.33	2.34
Central / 3 / South	1.58	1.63	ns
N. and E. / 4	1.81	ns	
Number of women	3,010	3,300	3,023
Chi squared	1,126	771	918
R squared	.270	.208	.228

ns = Not significant

3.4.2 Current Use of Contraception

Do the same variables that predict abortion also correlate with contraceptive behavior? Only in part (Table 3.6). In all three countries, women are more likely to be using contraception if they have two or more children; however, age shows a positive association only in Uzbekistan. The opposite relationship exists in the other two countries, where it is associated with younger women (when analyzed simultaneously with number of children and whether more children are desired). Women who are infecund are not contraceptive users.

Table 3.6 Odds ratios of currently using contraception for women who ever had sex, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate	Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)	0.96	1.02	0.96
Children ever born			
Less than 2	1.00	1.00	1.00
2	3.06	3.88	3.14
More than 2	4.73	5.67	5.97
Ever had an abortion			
No	1.00	1.00	1.00
Yes	1.61	ns	1.52
Want more children			
Yes	1.00	1.00	1.00
No	ns	1.55	1.48
Fecundity			
Fecund	1.00	1.00	1.00
Infecund	0.05	0.02	0.07
Family planning media exposure (index)	1.10	1.13	1.10
Mass media exposure			
Reads newspapers/magazines	ns	ns	ns
Watches television regularly	ns	ns	ns
Listens to radio regularly	1.22	0.82	ns
Years of schooling	1.05	ns	1.05
Currently working			
No	1.00	1.00	1.00
Yes	1.45	1.35	1.38
Wealth (index)	ns	1.08	ns
Religion	ns	ns	ns
Ethnicity	ns	ns	ns
Residence	ns	ns	ns
Region			
Kazakhstan / **Uzbekistan** / **Kyrgyz Republic**			
South / 2 / East	1.00	1.00	1.00
Almaty / Tashkent / Bishkek	1.38	1.57	1.60
West / 1 / North	ns	1.26	ns
Central / 3 / South	1.50	ns	ns
N. and E. / 4	1.37	ns	
Number of women	3,010	3,314	3,023
Chi squared	797	1,176	770
R squared	.192	.257	.185

ns = Not significant

Neither ethnicity nor urban residence, which relate to abortion, are associated with contraceptive use, but women's employment has the same positive relationship with contraceptive use that it does with abortion. Region of residence also shows a similar pattern of relationships with both abortion and contraception.

Exposure to mass media messages about family planning (captured here by the sum of whether they report having heard or seen such messages on radio, television or in the press) shows a consistent significant effect in each country.

3.4.3 Intention to Use Contraception

Approximately half of (sexually active) women not currently using contraception report that they intend to use a method in the future. In another analysis of longitudinal data from Morocco (Curtis and Westoff, 1996), the predictive validity of such intentions was found to be very strong, so it is especially interesting to examine the characteristics of nonusers who intend to use a method in the three countries.

In each country, younger women, women with two or more children, and women who are fecund are significantly more likely to intend to use a method in the future (Table 3.7). Knowing where to obtain a method and past use of contraception are also strong predictors of intention to use. The other variable that shows a significant association with intention to use in two of the countries shows a counterintuitive negative relationship—*nonusers who are working are less likely than those who are not working to intend to use a* method. The reason for this is not clear; it may be that the self-selection for working favors women who are at lower risk of pregnancy and who, for that reason, do not intend to use a method.

3.4.4 Knowledge of A Source of Contraception

Is lack of knowledge of a source of supply for contraceptive methods a limitation on use in these three countries? Among (sexually active) women classified as in need of contraception, 36 percent in Kazakhstan say that they do not know a source of supply, while 50 percent in Uzbekistan and 14 percent in the Kyrgyz Republic do not know a source. This should not be interpreted to mean that if they know a source that they would necessarily adopt contraception—as our analysis of intentions and reasons for nonuse indicate—but it is an obvious constraint. In Table 3.8, women who do or do not know a source of supply are shown in the multivariate context. The analysis is confined to women who are sexually active but not currently using a method.

Younger women and those who want more children are more likely to know a source. Those who have been exposed to mass media messages on family planning are also more informed about sources of supply. The only other characteristics that relate to knowledge of a source—in Kazakhstan and Uzbekistan only—are wealth and various regional effects.

Table 3.7 Odds ratios of intending to use contraception for nonusers who ever had sex, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate			Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)			0.84	0.87	0.81
Children ever born					
Less than 2			1.00	1.00	1.00
2			1.95	1.58	1.68
More than 2			1.73	1.73	2.49
Ever had an abortion			ns	ns	ns
Want more children			ns	ns	ns
Fecundity					
Fecund			1.00	1.00	1.00
Infecund			0.19	0.17	0.12
Know source of method					
No			1.00	1.00	1.00
Yes			2.43	2.86	2.60
Ever used a method					
No			1.00	1.00	1.00
Yes			1.68	2.46	1.72
Family planning media exposure (index)			ns	ns	1.16
Mass media exposure			ns	ns	ns
Years of schooling			1.10	ns	1.10
Currently working					
No			1.00	1.00	1.00
Yes			0.73	0.78	ns
Wealth (index)			0.84	ns	ns
Religion					
Other			1.00	1.00	1.00
Muslim			ns	2.09	ns
Ethnicity			ns	ns	ns
Residence			ns	ns	ns
Region					
Kazakhstan	**Uzbekistan**	**Kyrgyz Republic**			
South	2	East	1.00	1.00	1.00
Almaty	Tashkent	Bishkek	2.67	ns	ns
West	1	North	ns	2.16	ns
Central	3	South	1.67	1.77	1.90
N. and E.	4		2.05	0.44	
Number of women			1,406	1,511	1,371
Chi squared			806	664	861
R squared			.415	.326	.474

ns = Not significant

Table 3.8 Odds ratios of knowing a source of contraceptive supplies for nonusers who ever had sex, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate	Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)	0.97	0.98	ns
Children ever born			
Less than 2	1.00	1.00	1.00
2	ns	1.34	1.54
More than 2	ns	2.32	1.73
Ever had an abortion			
No	1.00	1.00	1.00
Yes	1.54	ns	ns
Want more children			
Yes	1.00	1.00	1.00
No	0.69	0.47	ns
Family planning media exposure			
Radio	ns	1.41	ns
Television	2.22	1.80	1.57
Print	1.34	1.37	1.92
Mass media exposure			
Radio	1.50	ns	ns
Television	ns	1.72	ns
Print	ns	ns	ns
Years of schooling	1.13	ns	1.22
Currently working			
No	1.00	1.00	1.00
Yes	ns	1.43	ns
Wealth (index)	1.31	1.16	1.40
Religion	ns	ns	ns
Ethnicity			
(Kazak) (Uzbek) (Kyrgyz)	1.00	1.00	1.00
Russian	ns	2.81	ns
Residence			
Rural	1.00	1.00	1.00
Urban	1.42	ns	ns
Region			
Kazakhstan / **Uzbekistan** / **Kyrgyz Republic**			
South / 2 / East	1.00	1.00	1.00
Almaty / Tashkent / Bishkek	ns	6.85	ns
West / 1 / North	1.43	4.03	ns
Central / 3 / South	0.66	2.57	ns
N. and E. / 4	2.83	2.55	
Number of women	1,406	1,511	1,371
Chi squared	334	291	116
R squared	.184	.141	.099

ns = Not significant

CHAPTER 4

OTHER DYNAMICS OF ABORTION AND CONTRACEPTION

4.1 Pregnancy Order

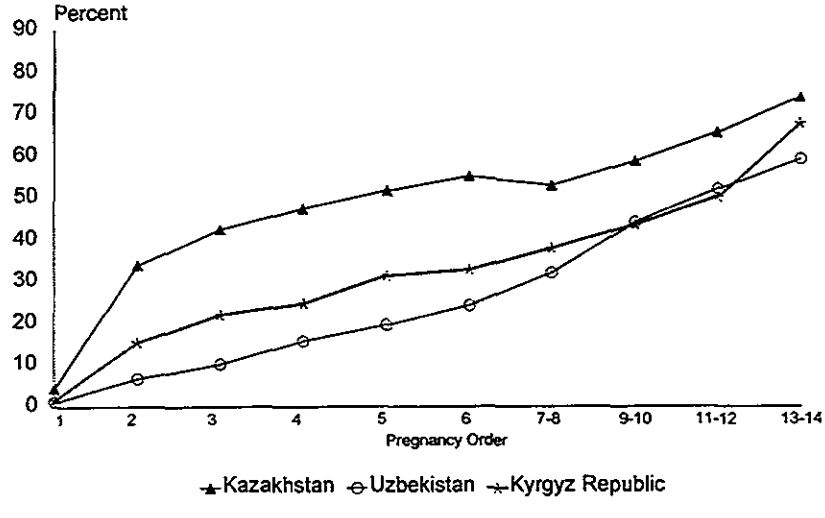
Reliance on abortion to control fertility increases with each additional pregnancy (*Table 4.1*). *Abortion of the first pregnancy* is comparatively rare; one to four percent of first pregnancies are aborted. This would probably be much higher if these countries experienced the high rates of premarital pregnancy found in many western countries where such a large proportion of abortions occur among single women. With the second pregnancy, however, the proportion of pregnancies aborted jumps markedly, especially in Kazakhstan, and thereafter continues a steady increase among higher order pregnancies. By the fourth and fifth pregnancies in Kazakhstan, roughly half of all pregnancies are aborted (Figure 4.1). The progression is slower in the other two countries and does not reach half until after 10 pregnancies.

Table 4.1 Percentage of pregnancies aborted by pregnancy order, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Pregnancy order	Percentage of pregnancies aborted		
	Kazakhstan	Uzbekistan	Kyrgyz Republic
1	4.4	1.2	1.7
2	33.9	6.7	15.4
3	42.6	10.2	22.1
4	47.5	15.7	24.7
5	51.6	19.6	31.3
6	55.2	24.2	32.8
7-8	52.9	32.0	38.0
9-10	58.9	44.2	43.7
11-12	65.7	52.0	50.1
13-14	73.9	59.3	67.7
15-16	74.8	*	82.8
All orders	37.7	13.7	21.1

* Too few pregnancies to show percent

Fig. 4.1 Percentage of pregnancies aborted by pregnancy order, Kazakhstan, Uzbekistan, and the Kyrgyz Republic



4.2 Repeat Abortions

Among women in Kazakhstan who have ever had an abortion, 70 percent have experienced more than one (Table 4.2); the mean number of abortions for those who have had at least one is 3.0. In Uzbekistan, 50 percent of the women who have had an abortion have had more than one, with an average of 2.0. The corresponding statistics for the Kyrgyz Republic are 60 percent and 2.3 abortions.

Table 4.2 Percent distribution of women who ever had an abortion by the number of abortions the women had, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Number of abortions	Kazakhstan	Uzbekistan	Kyrgyz Republic
1	30.1	51.4	40.1
2	26.8	25.9	29.1
3	15.5	92	15.9
4	10.7	7.5	6.5
5	6.8	2.8	3.0
6+	10.1	3.2	5.4
Total	100.0	100.0	100.0
Mean	3.0	2.0	2.3

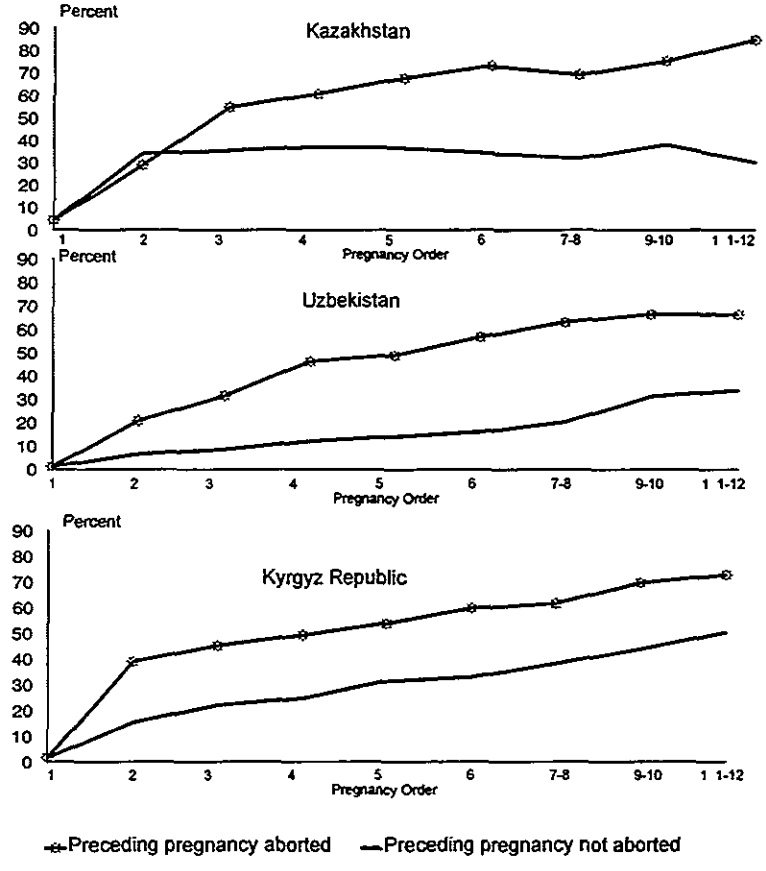
Another way of highlighting the numerical importance of repeat abortions is the calculation that in Kazakhstan, 28 percent of women account for 90 percent of abortions. In Uzbekistan this calculation is even more dramatic: only 8 percent of women account for 74 percent of abortions. In the Kyrgyz Republic, 82 percent of abortions are accounted for by 18 percent of women. The general picture is that a large proportion of abortions are concentrated among a small proportion of women.

What would the abortion rate be in these countries if repeat abortions were avoided? If only first abortions are counted, the general abortion rate in both Kazakhstan and in the Kyrgyz Republic would be one-third of the current observed rates; in Uzbekistan about half the abortion rate represents first abortions.

The question arises as to whether the likelihood of having an abortion is greater if the woman has had the experience of an earlier abortion. Does having had the experience make it easier for women to do it again? The answer (Figure 4.2) seems clear: there is a significantly higher probability of aborting a specific pregnancy if the preceding pregnancy was aborted. In all three countries the differences in the abortion rates between those who have or have not aborted the preceding pregnancy increase progressively with pregnancy order. The average magnitude of the difference is a rate between 30 and 40 percent higher if the preceding pregnancy was aborted.

What are the characteristics of the women who have repeat abortions, other than the obvious fact that they have had repeated unintended pregnancies? One analysis (not shown) indicates that women who have used both contraception and abortion are more likely to have had repeat abortions than women who have used only abortion. This suggests that users of both methods may have a greater motivation to control fertility. However, a multivariate analysis of the characteristics of women who have had one or more abortions (Table 4.3) reveals little. The only variables common to all three countries is the expected direct associations with age and with urban residence. Having two or more children, as well as Russian ethnicity, are predictors of repeat abortions in Kazakhstan and in the Kyrgyz Republic. In Uzbekistan, whether a contraceptive method has ever been used and not being Muslim have a strong effect on whether the woman has had more than one abortion. The former association is probably a reflection of the intensity of motivation to control fertility and contraceptive failure.

Fig. 4.2 Percentage of pregnancies aborted by whether or not the preceding pregnancy was aborted and pregnancy order, Kazakhstan, Uzbekistan, and the Kyrgyz Republic



4.3 Sequences of Births and Abortions

Is abortion used primarily for purposes of childspacing or for terminating childbearing? One approach to this question is to examine the patterns or sequences of live births and abortions. The occurrence of an abortion certainly does not necessarily signify the end of childbearing. To determine the extent to which induced abortion is used for purposes of limiting or of spacing, the outcome of the last pregnancy among older women (those 40 and over) was examined. Confining the analysis to older women (with at least one abortion) has the advantage of increasing the likelihood that the most recent pregnancy is the last pregnancy the woman will have. The disadvantage is that these women are from an older generation which may not be representative of the younger women although when the experience of younger women is examined the proportion of last pregnancies aborted is very similar.

The results for the three countries indicate clearly that, for women who have reported at least one abortion, the likelihood that the last pregnancy was aborted runs 2 to 1 or greater. Thus, this evidence suggests that abortion is considerably more likely to be used to limit than to space childbearing.

Table 4.3 Odds ratios of having had one or more abortions, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate			Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)			1.06	1.06	1.09
Children ever born					
Less than 2			1.00	1.00	1.00
2			1.41	ns	1.79
More than 2			1.61	ns	2.17
Want more children			ns	ns	ns
Know source of method			ns	ns	ns
Ever used a method					
No			1.00	1.00	1.00
Yes			ns	2.47	ns
Family planning media exposure			ns	ns	ns
Mass media exposure			ns	ns	ns
Years of schooling			0.93	ns	ns
Currently working			ns	ns	ns
Wealth (index)			ns	ns	1.32
Religion					
Other			1.00	1.00	1.00
Muslim			ns	0.47	ns
Ethnicity					
(Kazak) (Uzbek) (Kyrgyz)			1.00	1.00	1.00
Russian			1.66	ns	3.46
Residence					
Rural			1.00	1.00	1.00
Urban			1.34	1.52	1.51
Region					
Kazakhstan	**Uzbekistan**	**Kyrgyz Republic**			
South	2	East	1.00	1.00	1.00
Almaty	Tashkent	Bishkek	ns	ns	ns
West	1	North	ns	0.50	ns
Central	3	South	ns	ns	ns
N. and E.	4		ns	ns	ns
Number of women			1,473	826	1,196
Chi squared			183	112	234
R squared			.099	.098	.145

ns = Not significant

This conclusion, however, may overestimate the use of abortion for limiting purposes because it focuses exclusively on the outcome of the most recent pregnancy. Some women have used abortion for both limiting and spacing purposes, a pattern that can only be determined by examining the sequences of live births and abortions. For example, a woman with a total of four pregnancies could have first had a live birth, then an abortion because the second pregnancy occurred too soon, then another live birth, and finally an abortion of her fourth (last) pregnancy. Such a woman would have used abortion as a method to control both the spacing and the limiting of her childbearing. This means that there are three rather than two categories: women who have used abortion for limiting purposes only, those who have used it only for spacing, and those who have used abortion for both purposes.

The distribution of older women (40 and over) in Kazakstan and in the Kyrgyz Republic shows roughly equal proportions of a third in each of these three categories, suggesting that abortion is used to the same extent for both limiting and spacing reasons. In Uzbekistan, however, there is greater reliance on abortion for limiting purposes and much less on the dual purpose, although the exclusive use for spacing includes a third of the women in that country as is the case in Kazakhstan and the Kyrgyz Republic.

Another approach to the question of whether abortion is used primarily for spacing or for terminating fertility is to examine the intention status of the pregnancy in relation to its outcome. The intention status of pregnancies aborted in the past three years is very similar in the three countries. About three-quarters of aborted pregnancies were reported to have occurred when no more children were wanted (unwanted pregnancies), 13 percent were reported as mistimed but not unwanted, and the remaining 10 percent or so were intended. This last group is difficult to understand. The large majority of these women want more children. It may be that the circumstances of their life changed after becoming pregnant or it may reflect the unreliability of these retrospective reports of intentions. The women who aborted the mistimed pregnancies would have preferred to have waited 2.5 years longer in Kazakhstan, 1.8 years longer in Uzbekistan, and 2.9 years longer in the Kyrgyz Republic.

The reliability of these data on reproductive intentions is particularly troubling when considering the "unwanted" category. Considerable ambiguity can creep into the distinction between not wanting any more children *ever* at the time the pregnancy occurred (unwanted), and not wanting the pregnancy at that time (mistimed). One check on this is to examine the consistency of the interpretation that no more children were wanted at the time of the aborted pregnancy with whether the woman reported a preference for having more children at the time of the survey. This check reveals that in Kazakstan and in the Kyrgyz Republic, a third of the women who reported that an aborted pregnancy was unwanted also indicated a preference for more children at the time of the survey (a quarter in Uzbekistan). How much of this discrepancy is due to subsequent changes of mind and how much simply to misunderstanding the question is unknown.

For purposes of this analysis, we define a pregnancy as unwanted only if both conditions prevail, namely that the woman reported that the pregnancy occurred when no more children were wanted and that she currently wants no more. By this definition, unwanted pregnancies are 22 percent in Kazakhstan, 9 percent in Uzbekistan, and 16 percent in the Kyrgyz Republic. The proportion of these unwanted pregnancies that were aborted is similar in the three countries: 77 percent in Kazakhstan, 86 percent in Uzbekistan, and 74 percent in the Kyrgyz Republic. These rates are somewhat higher than the proportion of mistimed pregnancies—pregnancies wanted, but later—that were aborted, which was two-thirds in all three countries. Thus, from this perspective, the tendency to abort an unwanted pregnancy is moderately greater than a mistimed pregnancy. If we simply take all abortions (of last pregnancies) and classify them by whether they were for limiting or for spacing purposes, the limiting purpose is somewhat more common in Uzbekistan while they are equally divided in Kazakhstan and in the Kyrgyz Republic. The most likely conclusion, therefore, is that in these countries abortion is used about equally for the postponement and for the termination of childbearing.

4.4 Use of Contraception Before Abortion

Despite the motivation to avoid pregnancy for women who subsequently abort the pregnancy, the large majority of such women did not use any method of contraception before the pregnancy (Table 4.4). In Kazakhstan 79.6 percent of the women who aborted their last pregnancy (in the past three years) had not been using any method at the time of conception; in Uzbekistan this is 86.2 percent and in the Kyrgyz Republic it is 75.7 percent. Women using a method had experienced contraceptive failure, most of which occurred with the IUD (the most commonly used method). These data indicate the potential for reducing abortion rates lies both in increasing contraceptive use and reducing contraceptive failures. The latter could be approached perhaps with better IUDs as well as by shifting use from traditional to modern methods.

Table 4.4 Percent distribution of women who aborted their last pregnancy (in the past three years), by use of contraception at the time of conception, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Contraceptive use	Kazakhstan	Uzbekistan	Kyrgyz Republic
No contraception	79.6	86.2	75.7
Modern method	13.4	11.0	13.3
Traditional method	7.0	2.8	11.0
Total	100.0	100.0	100.0

4.5 Contraceptive Use and Intention to Use Among Women Who Aborted Their Last Pregnancy

Another indicator of the shift from abortion to contraception is the use and intention to use contraception after an abortion (Table 4.5). In Kazakhstan, 92 percent of women who aborted their last pregnancy are either currently using contraception (72 percent) or intend to use a method (20 percent). The same high level of use or intention to use is evident in Uzbekistan and in the Kyrgyz Republic.

Table 4.5 Percent distribution of women who had a pregnancy terminating in the past three years by current use of contraception or intention to use a contraceptive method, according to outcome of last pregnancy, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Outcome of last pregnancy	Currently using a method	Intend to use a method	Do not intend to use a method	Total
Kazakhstan				
Live birth	48.7	39.7	11.5	100.0
Abortion	72.3	19.7	8.0	100.0
Uzbekistan				
Live birth	51.6	25.6	22.8	100.0
Abortion	68.2	17.8	14.0	100.0
Kyrgyz Republic				
Live birth	53.3	42.3	4.4	100.0
Abortion	73.1	23.1	3.8	100.0

Multivariate analyses of both current use and intention to use for women whose last pregnancy ended in an induced abortion are shown in Tables 4.6 and 4.7. In Kazakhstan and in the Kyrgyz Republic, younger women and those with two or more children are more likely to be using a contraceptive method. In Uzbekistan the only variables that show an independent relationship with current use in this post-abortion group are fecundity and one of the regions.

Intention to use contraception has been found to be strongly associated with subsequent use (Curtis and Westoff, 1996). In all three countries, fecund women and younger woman are more likely to intend to use a method (Table 4.7). In Uzbekistan and in the Kyrgyz Republic having two or more children is associated with intention to use. In Kazakhstan women resident in Almaty and in the North and East regions are more likely to intend to use a method. There is also a very strong association in that country between exposure to the print media and intention to use, a relationship that is independent of years of schooling.

Table 4.6 Odds ratios of intending to use contraception for nonusers who ever had sex, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate	Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)	0.91	ns	0.95
Children ever born			
Less than 2	1.00	1.00	1.00
2	2.59	ns	2.04
More than 2	3.84	ns	4.54
Want more children	ns	ns	ns
Fecundity			
Fecund	1.00	1.00	1.00
Infecund	0.08	0.07	0.04
Family planning media exposure	ns	ns	1.20
Mass media exposure			
Reads newspapers/magazines	ns	ns	ns
Watches television regularly	0.12	ns	ns
Listens to radio regularly	0.66	ns	ns
Years of schooling	ns	ns	ns
Currently working			
No	1.00	1.00	1.00
Yes	2.20	ns	ns
Wealth (index)	ns	ns	ns
Religion	ns	ns	ns
Ethnicity	ns	ns	ns
Residence	ns	ns	ns
Region			
Kazakhstan / **Uzbekistan** / **Kyrgyz Republic**			
South / 2 / East	1.00	1.00	1.00
Almaty / Tashkent / Bishkek	ns	ns	ns
West / 1 / North	ns	0.43	ns
Central / 3 / South	ns	ns	ns
N. and E. / 4	ns	ns	
Number of women	979	522	755
Chi squared	254	150	170
R squared	.199	.222	.178

ns = Not significant

Table 4.7 Odds ratios of intending to use contraception for nonusers who aborted their last pregnancy, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Covariate	Kazakhstan	Uzbekistan	Kyrgyz Republic
Age (in single years)	0.79	0.85	0.74
Children ever born			
Less than 2	1.00	1.00	1.00
2	ns	4.08	2.06
More than 2	ns	3.61	5.00
Want more children	ns	ns	ns
Fecundity			
Fecund	1.00	1.00	1.00
Infecund	0.07	0.23	0.07
Family planning media exposure	ns	ns	ns
Mass media exposure			
Reads newspapers/magazines	3.26	ns	ns
Watches television regularly	ns	ns	ns
Listens to radio regularly	ns	ns	ns
Years of schooling	ns	ns	1.22
Currently working			
No	1.00	1.00	1.00
Yes	1.88	ns	ns
Wealth (index)	ns	ns	ns
Religion	ns	ns	ns
Ethnicity	ns	ns	ns
Residence	ns	ns	ns
Region			
Kazakhstan / **Uzbekistan** / **Kyrgyz Republic**			
South / 2 / East	1.00	1.00	1.00
Almaty / Tashkent / Bishkek	9.42	ns	ns
West / 1 / North	ns	ns	ns
Central / 3 / South	ns	ns	ns
N. and E. / 4	3.18	ns	
Number of women	347	183	251
Chi squared	216	76	188
R squared	.476	.331	.541

ns = Not significant

4.6 Reasons for Nonuse

Women who were not using a method of contraception were queried about the main reason for this behavior. Their reasons have been grouped into six categories and are shown in Table 4.8 for women whose last pregnancy terminated in either a live birth or in an induced abortion (a distinction that is unrevealing here). The principal reasons offered by nonusers in Kazakhstan and Uzbekistan are either disapproval of contraception or low risk of becoming pregnant. The disapproval response includes moral or religious objections or a reaction to the husband's opposition; disapproval is low however in the Kyrgyz Republic. The low risk of pregnancy category includes those women who believe that the likelihood of becoming pregnant again is close to zero either for physiological reasons or because of infrequent sex. The combination of these two categories accounts for half to two-thirds of the women's reasons for nonuse. If women who are pregnant or trying to become pregnant are excluded from this calculation, the two reasons—disapproval and low risk—jointly account for around three-quarters of the responses. A similar question about reasons for nonuse was asked of nonusers who said they did not intend to use any method in the future, with similar results.

Table 4.8 Percent distribution of women who had a pregnancy terminating in the past three years and did not use contraception by reason for nonuse, according to outcome of last pregnancy, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Outcome of last pregnancy					
	Birth			Abortion		
Reason for nonuse	Kazakhstan	Uzbekistan	Kyrgyz Republic	Kazakhstan	Uzbekistan	Kyrgyz Republic
Disapproves	21.5	26.4	3.5	29.8	33.4	11.5
Wants more children	15.0	20.7	19.3	15.7	4.9	17.6
Pregnant	10.8	11.6	13.5	11.3	8.8	17.2
Health	3.7	5.7	1.3	4.8	7.2	6.0
Low risk	38.5	26.4	56.5	22.7	31.3	31.8
Other	10.5	9.2	5.9	15.7	14.4	15.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

CHAPTER 5

DYNAMICS OF CHOICE

The opportunity to use modern contraception in this part of the world, which has become generally available only in the past decade or so, highlights the question of women's attitudes toward the choice of birth control methods (Storey, Ilkhamov, and Saksvig, 1997). Is the availability of modern methods welcomed universally as the alternative to abortion or are there residual preferences for abortion or mixed feelings about the choice? In order to probe these attitudes, an additional set of questions was included in the survey conducted in the Kyrgyz Republic. The focus is on the dimensions of choice both regarding abortion versus contraception and choice in the context of four specific contraceptive methods: the IUD, the pill, injectables, and the condom.

5.1 Attitudes Toward Abortion and Contraception

When asked whether they approve or disapprove of abortion, most women in the Kyrgyz Republic (78 percent) reply that they disapprove while only 1.4 percent approve. The remainder feel that it depends on the situation (17 percent) or say they don't know. In contrast, when asked about their attitude toward family planning, 95 percent approve. When queried about whether they would prefer to use a method in the future or rely on abortion (or do neither), over 90 percent would prefer contraception over abortion with only 0.3 percent opting for abortion. This general approval of contraception is less evident when attitudes toward specific methods are elicited, as described in Section 5.2 below. The principal reason offered for preferring contraception is that abortion is perceived as detrimental to one's health; nearly two-thirds (65 percent) fall into this category while 14 percent, the second most frequent response, mention moral objections.

The women of the Kyrgyz Republic were also queried about their perceptions of how different groups in the community view abortion and family planning. Religious organizations and elderly people are perceived to be overwhelmingly opposed to the use of abortion (over 90 percent) and moderately in favor of family planning (50 percent approve, 30 percent disapprove). Half of local community leaders and politicians are regarded as opposed to abortion with a quarter of the respondents saying that they do not know their views; most women (over two-thirds) feel that these leaders are in favor of family planning. When asked about the attitudes of their relatives, 80 percent feel that they are opposed to abortion and the same proportion perceive a favorable attitude toward family planning.

Given these clear sentiments in favor of contraception and against abortion, it is noteworthy that a third of the women (32.7 percent) say that they would have an abortion if they became unintentionally pregnant sometime in the future. This attitude is associated with having had an abortion: 58.7 percent of women with that experience stated that they would have another abortion in contrast to 21.5 percent of those who have never had an abortion. A multivariate analysis (not shown) to determine other individual characteristics that might predispose women to seek an abortion include a desire to have no more children and a history of having used contraception. All of these variables are in some measure an indication of the motivation to control fertility. Women who are economically better off and women who do not know a source to obtain a contraceptive method are also more likely to say that they would have an abortion if they became unintentionally pregnant.

The general impression that emerges from these data is that contraception is clearly preferred to abortion but that abortion, despite being disapproved of by a large majority, is nonetheless considered by many to be a viable option in the event of an unintentional pregnancy.

5.2 Attitudes Toward Specific Contraceptive Methods and Abortion

The IUD is the method of contraception most commonly known to women in the Kyrgyz Republic (95.6 percent) (Table 5.1). It is also by far the most widely used method: two-thirds of married women have used the method. The pill is recognized by two-thirds of all women but has been used by only 12.7 percent of married women. Condoms are more widely known: 81.1 percent of all women have some familiarity with condoms and 26.2 percent of married women have had experience with them. Injectables, which is the other method of contraception included in the attitude study, is recognized by only 58 percent of all women and has been used by only 4 percent of married women. Abortion is universally known or is presumed to be known (an explicit question about knowledge of abortion was not included).

A hypothetical question was posed about which method women would recommend to a couple who asked their advice on how to avoid having any more children in the future. The clear favorite is the IUD, recommended by 57.3 percent of the women, followed by the condom (19.5 percent) and the pill (12 percent). To "take a chance and use abortion if pregnancy occurs" was the recommendation of only 0.2 percent.

Accessibility. The IUD, the pill and condoms are seen to be easily available while women perceive a problem in this regard both with injectables and abortion (Table 5.1).

Table 5.1 Attitudes of women[1] in the Kyrgyz Republic toward different methods of birth control

Attitude	IUD	Pill	Condom	Injectables	Abortion
Percentage of women who know method	95.6	67.7	81.1	58.0	na
Accessibility					
Problem	6.3	11.0	2.4	64.0	83.6
No problem	79.3	68.9	85.8	10.3	5.4
Don't know	14.4	20.2	11.8	25.6	11.0
Reliability					
Reliable	70.6	46.6	60.2	52.3	na
Not reliable	15.4	20.5	13.3	12.8	na
Don't know	14.1	32.9	26.5	34.8	na
Health problems or side effects					
Problem	39.4	58.3	na	55.3	84.8
No problem	43.9	19.0	na	17.0	8.0
Don't know	16.7	22.7	na	27.7	7.2
Monetary cost					
Problem	26.4	37.4	30.6	31.1	54.6
No problem	57.1	44.7	52.0	46.1	26.9
Don't know	16.5	17.8	17.4	22.8	18.5
Husband's attitude[2]					
Problem	14.2	12.8	25.3	14.3	47.0
No problem	55.7	38.9	37.4	34.3	20.2
Don't know	30.0	48.4	37.2	51.3	32.8

na = Not applicable
[1] Based on women who know of the method
[2] Based on women with a partner

Reliability. The IUD is regarded as a reliable method by 70.6 percent of the women and the condom by 60.2 percent, although a quarter stated that they did not know about its reliability. The pill and injectables are considered reliable by about half of the women, but about one third do not know (Table 5.1).

Health Problems or Side Effects. Abortion is regarded as harmful by a much greater proportion of women than any of the three contraceptive methods (the question was not asked about condoms). Nonetheless, the pill and injectables are perceived as harmful or as having side effects by more than half of the women. Even the IUD is regarded as having problems by 39.4 percent of the respondents (Table 5.1).

Monetary Costs. The main difference in the perception of costs is that abortion is seen as more costly (by over half of the women) than the four contraceptive methods (Table 5.1) which are regarded as being expensive by between a quarter and a third of the women.

Husband's Attitude. The distribution of responses to this dimension in Table 5.1 are based on women in union. Husbands are perceived to have problems with abortion (47 percent) and to some extent with condoms (25.3 percent) but not with the other methods. There is a substantial proportion of women who do not know whether their partner has, or would have a problem with a method.

In general, there is a considerable amount of ignorance about the pill and injectables. Concern about health matters in connection with abortion seems more comprehensible than the high level of concern about oral contraception. Some of this suspicion about the pill undoubtedly stems from the bad reputation that it had for years in the former Soviet Union. Some part may also be a response to the greater side effects of the early generation, high-estrogen pills.

5.3 Summary of Attitudes in the Kyrgyz Republic

A clear picture of a strong preference for contraception over abortion emerges from these attitudinal data from the Kyrgyz Republic. Women consider abortion as dangerous to their health, inaccessible, and costly. They also perceive community leaders and relatives to be opposed to abortion. One-third of the women, however, say that they would nonetheless seek an abortion if they became unintentionally pregnant.

Although the women of the Kyrgyz Republic are strongly in favor of contraception in general, they perceive problems with the particular modern methods available. Accessibility is not seen as an issue except for injectables. There is considerable ignorance about the reliability of contraceptive methods other than the IUD. The IUD, the pill and injectables, however, are regarded by a large proportion of women as having health problems or side effects. In addition, the costs of the methods are considered too high by many women. And finally, women either do not regard their husbands' views on contraceptive methods as a problem or they simply do not know those views.

CHAPTER 6

A SIMULATION MODEL OF CONTRACEPTION AND ABORTION

In this section we present a model for simulating induced abortion rates. The methodology of the model involves classifying women into categories according to the likelihood of their having an abortion and then shifting the distribution of women among categories and calculating the abortion rate associated with the changed distribution. Particular interest lies in the question of how much the abortion rate could be reduced by specific increases in the proportion of women using contraception. This simulation exercise is important because it indicates the potential impact on abortion rates of government policies which affect the practice of contraception.

6.1 Classification Categories

The two principal components of the model are users and nonusers. Users can be divided into those using modern methods and those using traditional (less effective) methods. The potential abortion rate for users depends on the contraceptive failure rates and the propensity of users who become unintentionally pregnant to seek an abortion.

Nonusers fall into five categories, each with different probabilities of becoming pregnant and having an abortion: (1) women who have never had sexual intercourse who contribute no pregnancies and thus no abortions; (2) women who are currently pregnant, some of whom can be expected to abort depending on the duration of the pregnancy and its intention status; (3) women who are trying to become pregnant, a small fraction of whom can be expected to seek an abortion after a change of mind or circumstances; (4) women who are infecund or at low risk of pregnancy because of infrequent sex or for other reasons who nonetheless will experience some pregnancies and subsequent abortions; and, (5) women who are at risk of pregnancy, who want to avoid pregnancy but who are not using any method of contraception—a category known as women with an *unmet need for family planning.*

6.2 Parameter Estimates for the Model

The estimation of parameters is a shaky undertaking given the nature of the data available. The details are described in the Appendix. The reasonableness of the parameter estimates is supported by the close corrspondence between the abortion rates derived from the model and the abortion rates calculated directly from the survey data: 55 and 53, respectively, for Kazakhstan, 20 and 19 for Uzbekistan, and 44 and 46 for the Kyrgyz Republic (appendix Figures A.1-A.3 and Table 2.2).

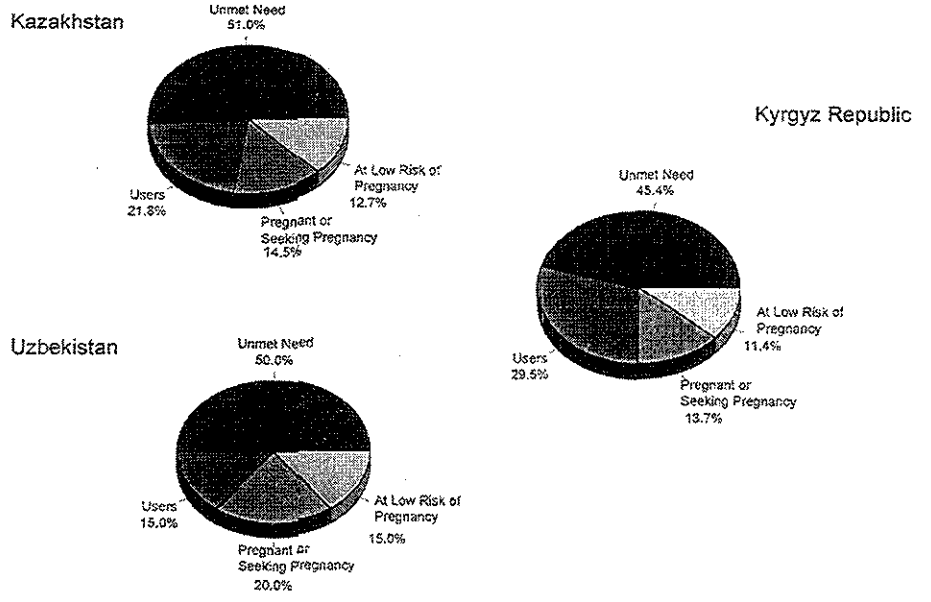
6.3 Importance of the Different Classification Categories

The relative contribution to the abortion rate of each of the categories of users and different types of nonusers is shown in Table 6.1 and in Figure 6.1. The main contributors to the abortion rate are women with an unmet need for contraception followed by users of contraception. Collectively, all nonusers account for about three-quarters and users for one-quarter of total abortions in Kazakhstan and in the Kyrgyz Republic. In Uzbekistan nonusers account for 85 percent of all abortions.

Table 6.1 Percent distribution of women who aborted their last pregnancy in the past three years by the components of abortion: the percentage of abortions contributed by different categories of women, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Component	Kazakhstan	Uzbekistan	Kyrgyz Republic
Currently pregnant	9.1	15.0	11.4
Seeking pregnancy	5.4	5.0	2.3
Low risk	12.7	15.0	11.4
Unmet need	50.9	50.0	45.4
Total nonusers	78.1	85.0	70.5
Total users	21.8	15.0	29.5
Total women	100.0	100.0	100.0

Figure 6.1 Components of abortion: Percentage of recent abortions contributed by different categories of women



It is clear that the most effective way to reduce the abortion rate is to convert women with an unmet need for contraception into contraceptive users. At the extreme, if all women with an unmet need were using a method and the failure rate were zero (and all currently pregnant women were intentionally pregnant), the abortion rate in all three countries would decline by about 75 percent. Under these extreme assumptions, the only abortions remaining would be among women who become unintentionally pregnant despite being at low risk of pregnancy and among women who intentionally became pregnant but subsequently change their mind.

Such a shift of all unmet need to the user category implies an increase in the contraceptive prevalence rate of about 15-20 percent in the three countries, which is not an unreasonable expectation over the next 5-10 years. But the above illustration assumes a zero failure rate. If instead, the failure rates for modern methods are built into the calculation (see Appendix, Table A.1), the abortion rates would theoretically decline by 55-60 percent in the three countries.

6.4 More Realistic Scenarios

The assumptions of zero unmet need, that all current pregnancies are intentional, and that all contraception is practiced with very low failure rates are still unrealistic. In Table 6.2, three realistic scenarios are depicted in which the current contraceptive prevalence rate is increased alternatively by 10, 20, and 30 percent. Judging from international experience, a 30 percent increase in Kazakhstan and in the Kyrgyz Republic would be the likely minimum increase while in Uzbekistan, a 40 percent increase over time is plausible. These would correspond to a conventional contraceptive prevalence rate (CPR) (based on married women only) of about 77 percent.

The reductions in abortion rates implied by these more realistic assumptions are shown in the bottom row of Table 6.2.[2] The 10 percent increase in the contraceptive prevalence rate leads to a 15 percent average reduction in abortions in the three countries. The 20 percent increase in the CPR yields a 25 percent

Table 6.2 Some possible future scenarios regarding use of contraception and number of abortions by categories of women, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

	Kazakhstan				Uzbekistan				Kyrgyz Republic			
		Increase in contraceptive use by:				Increase in contraceptive use by:				Increase in contraceptive use by:		
Category	Current	10%	20%	30%	Current	10%	20%	30%	Current	10%	20%	30%
Percentage of all women:												
Using contraception	43.3	47.6	52.0	56.3	39.6	43.6	47.5	51.5	42.8	47.8	51.4	55.7
Estimated abortions (1,000)	12	13	14	16	3	3	3	3	13	13	14	16
Never had sex	19.9	19.9	19.9	19.9	24.9	24.9	24.9	24.9	21.2	21.2	21.2	21.2
Pregnant	3.8	3.4	3.2	3.0	6.9	6.2	5.9	5.4	5.7	5.1	4.8	4.6
Estimated abortions (1,000)	5	4	4	4	3	2	2	2	5	5	4	4
Seeking pregnancy	7.1	7.1	7.1	6.4	7.9	7.9	7.9	7.1	5.6	5.6	5.6	5.2
Estimated abortions (1,000)	3	3	3	3	1	1	1	1	1	1	1	1
Low risk	17.8	16.0	13.8	12.9	12.8	11.5	9.9	9.3	15.5	13.9	12.4	11.8
Estimated abortions (1,000)	7	7	6	5	3	3	2	2	5	4	4	4
In need	8.1	6.0	4.0	1.5	8.0	5.9	3.9	1.8	6.5	4.9	3.3	1.5
Estimated abortions (1,000)	28	21	14	5	10	7	5	2	20	15	10	5
Total abortions (1,000)	55	48	41	33	20	16	13	10	44	38	33	30
Percent reduction in abortions	—	13	25	40	—	20	35	50	—	14	25	32

[2]In these calculations, the level of unmet need and the current pregnancy rates are reduced roughly by the above magnitudes with some small reductions also in the other types of nonuse. The contraceptive failure rates and other parameters such as the proportion of women who never had sex and the proportion seeking pregnancy remain mostly constant while the proportion infecund declines (implying greater contraceptive vigilance among those with infrequent sexual activity or those who are uncertain about their fecundity). The observed contraceptive failure rates are maintained throughout.

reduction in the Kyrgyz Republic and in Kazakhstan and a 35 percent reduction in Uzbekistan. The 30 percent increase in the contraceptive prevalence implies a 32 percent reduction in the abortion rate in the Kyrgyz Republic, a 40 percent reduction in Kazakhstan, and a 50 percent reduction in Uzbekistan.

There are other changes that are likely to occur which are not included in these calculations. The proportion of women in the childbearing ages who have never had sex, which is very high in these countries (20 percent in Kazakhstan and 25 percent in Uzbekistan), will decline as a result of a likely increase in premarital sex. This change will exert an upward pressure on the abortion rate.

Fertility rates are declining rapidly in these countries. As the number of children desired decreases, the unintended pregnancy rate will rise and with it the number of abortions. At the same time, however, contraceptive failure rates may decline as reliance on better methods increases but, as we have indicated in the Appendix, the rates estimated here are low by international standards.

Less predictable is any change in attitudes toward abortion. Although the evidence presented here clearly points toward the replacement of abortion with contraception, there is little basis for knowing whether any change is in store that would affect the propensity of women to abort mistimed or unwanted pregnancies. The availability of abortion and changes in medical technology could play a role but again there is little basis for forecasting any such change. For purposes of the illustrations presented here, the probability of aborting an unintended pregnancy remains unchanged.

6.5 A "Best Guess" Scenario

Since certain trends in contraceptive practice and fertility norms appear likely, it may be useful to offer a prognosis or "best guess" about these trends and the implications for the abortion rates in these populations. The approximate time horizon is five years.

Sexual Activity. Although over the long run, it is likely that there will be a decline in the virginity rate in these populations because of the increasing proportion of women of marriageable age along with some increase in premarital sex, this parameter remains unchanged for so short a time horizon.

Contraceptive Practice. All signs point to a continued increase in the use of contraception. In all three countries, a 15 percent increase in the contraceptive prevalence rate is assumed over the five-year period. The observed failure rates for modern methods are assumed (Table A.1) except for Uzbekistan where the general failure rate of 1.0 percent is retained since it already appears to be underestimated.

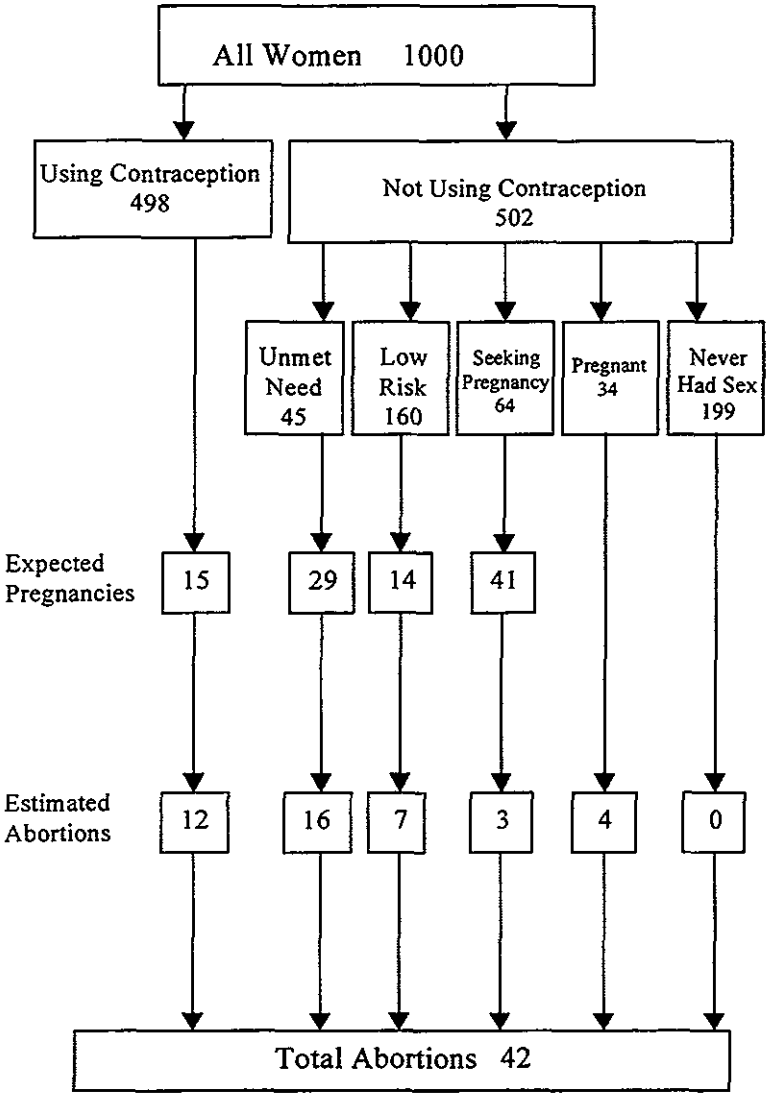
Pregnancy. Since fertility is falling in all of these countries, some reduction in the proportions seeking pregnancy as well as in the current pregnancy rate is reasonable. A reduction of approximately 10 percent in both these two components is assumed.

Low Risk. Although there may be little change in the intrinsic rate of infecundity, there will be some reduction in the observed proportion since more women will be using a method and therefore will be less aware of infecundity. A 10 percent reduction of the proportion at low risk is assumed.

Unmet Need. The projected increase in contraception will be drawn mainly from the unmet need category, which is reduced roughly by 40 percent in this scenario.

Abortion Propensity. The current observed probabilities of aborting remain fixed in these calculations.

Figure 6.2.1 Best Guess Scenario for Kazakhstan



If these assumptions of change are valid, Kazakhstan will experience a decline in the abortion rate over the short term from 55 to 42 abortions per 1,000 women of reproductive age (Figure 6.2.1), a decline of 24 percent. This decline is attributable entirely to the shift from unmet need to contraceptive practice.

In this best guess scenario, the abortion rate for Uzbekistan declines by 25 percent from 20 to a rate of 15, also because of the shift from unmet need to contraceptive use (Figure 6.2.2).

The best guess in the Kyrgyz Republic shows a significant reduction in the abortion rate from 44 to 29, a reduction of 30 percent (Figure 6.2.3). This reduction is due both to the shift from unmet need to use and to the projected lower failure rates.

Figure 6.2.2 Best Guess Scenario for Uzbekistan

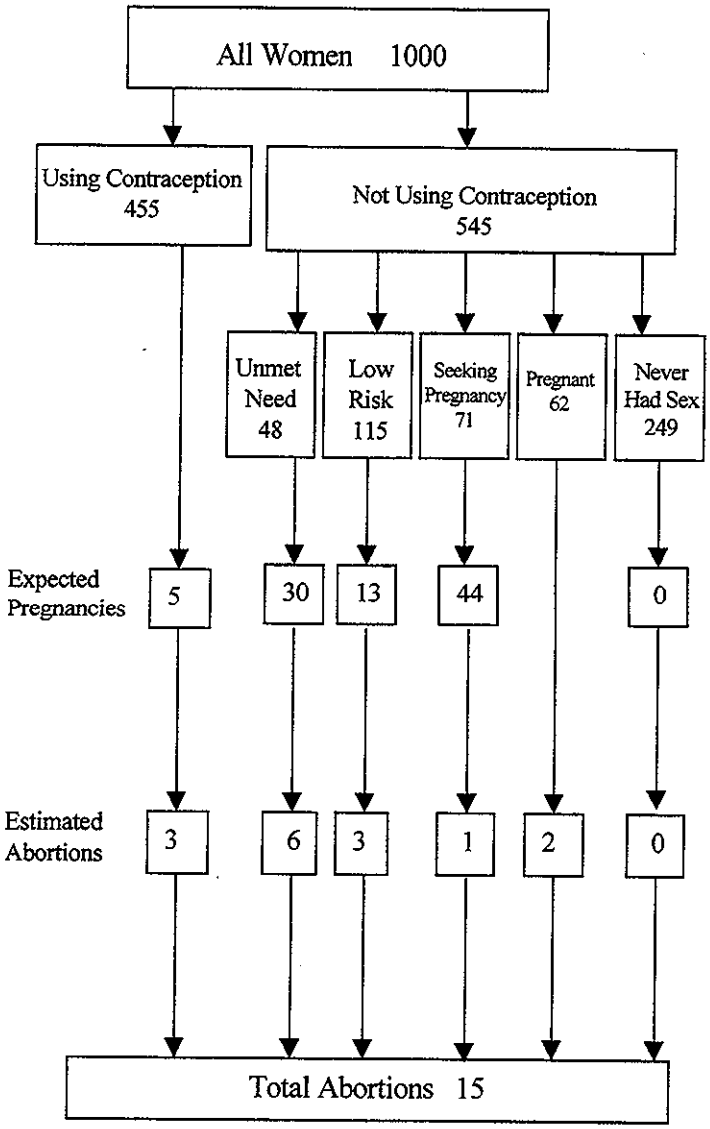
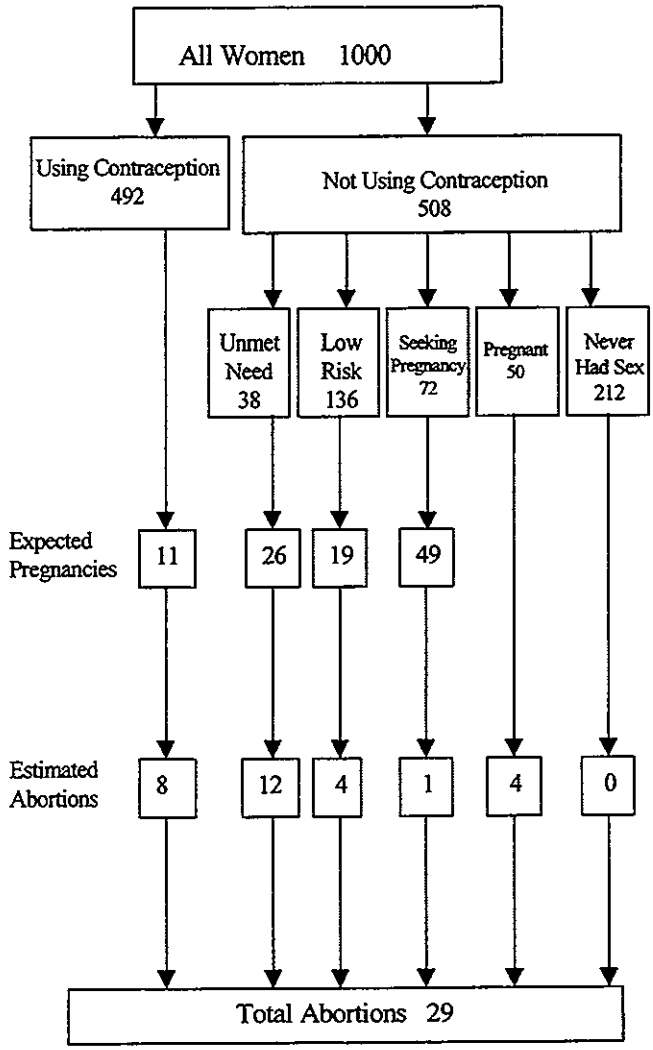


Figure 6.2.3 Best Guess Scenario for Kyrgyz Republic



The impact on the abortion rate of all of these different assumptions about the shifting composition of contraceptive prevalence, failure rates, and unmet need, are summarized for the three countries in Figures 6.3.1 to 6.3.3.

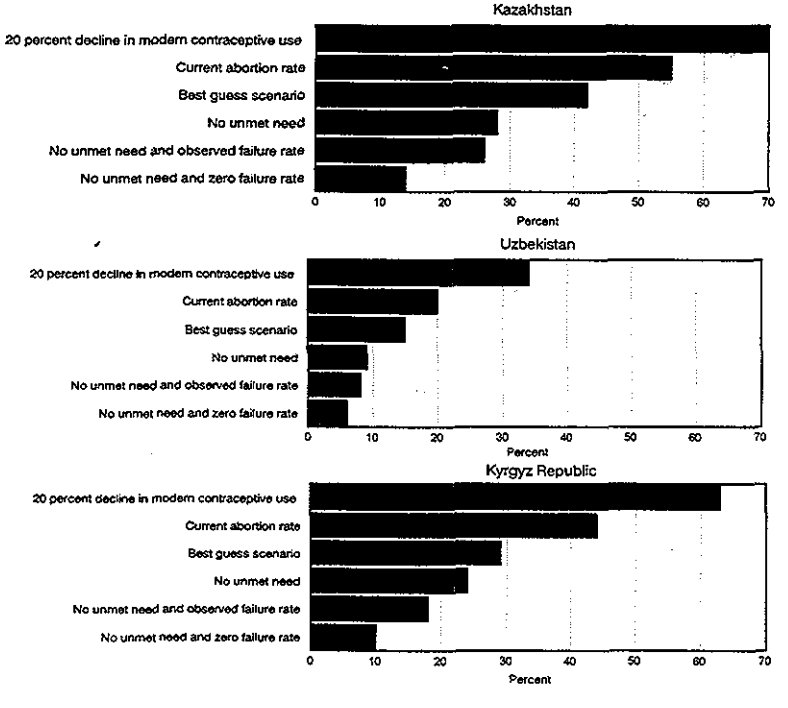
In summary, it is clear that the main route to reducing the prevalence of abortion is by increasing the use of contraception and, secondarily, by reducing the rate of contraceptive failure. Women classified as having an unmet need for family planning would be the main target for efforts to shift from abortion to contraception. If such women in these countries were all to use a method with the observed failure rates, the abortion rate could be reduced by about half.

There is another possibility that should be examined. What would happen to the abortion rate if the use of modern contraceptive methods, instead of increasing, were to decline, perhaps because of a reduction in funding? An estimate is shown in the top bar of Figure 6.3 that illustrates the impact of a 20 percent decline in the use of modern methods. The assumptions are that half of these women would substitute traditional methods (and experience the associated higher failure rates) and the other half would become part of the unmet need category. In both cases, we assume that the propensity to seek an abortion would remain the same as that for contraceptive failure in general.

The results show significant rises in the abortion rates. The abortion rate in Kazakhstan would rise from 55 to 70 per 1,000. In Uzbekistan the abortion rate would rise from 20 to 34 and in the Kyrgyz Republic it would increase from 44 to 63.

It seems clear that couples in these populations will be seeking to have small families; the fertility rate in Kazakhstan is already very low and it is declining in the other two countries as well. This means that the pressures to control fertility will continue to mount. As the shift to contraceptive use continues, the failure rates of contraceptive methods will become increasingly important. Given the high proportion of pregnancies aborted following a contraceptive failure (around 2 out of 3), the failure rate will have considerable impact on the abortion rate. The program implications are clear: to maximize the adoption of the most effective methods and to increase the diversity of methods available. Increasing the diversity of methods could reduce the failure rate (for example, adding sterilization) and at the same time potentially attract more nonusers.

Figure 6.3 Estimated annual abortion rates under different assumptions: Kazakhstan, Uzbekistan, and the Kyrgyz Republic



CHAPTER 7

SUMMARY AND CONCLUSIONS

There is ample evidence that abortion is declining and that contraceptive use is increasing in the Central Asian Republics of Kazakhstan, Uzbekistan, and the Kyrgyz Republic. The change is most pronounced in Kazakhstan. For many decades, abortion was the principal method of birth control in the former Soviet Union both because of the unavailability of modern contraceptive methods and because of negative attitudes on the part of the medical establishment, particularly regarding oral contraceptives. What is remarkable is how rapidly this substitution of contraception for abortion seems to be occurring, with major shifts apparent in the space of less than a decade. The U.S. Agency for International Development and the United Nations Population Fund have played a role in this transformation. Between 1993 and 1997, USAID invested almost $18 million in a Reproductive Health Services Expansion Program in the Central Asian Republics which included social marketing campaigns to increase the availability of modern contraceptives. The UNFPA provided $12.6 million to the three countries from 1994 to 1998 for family planning and related services and an additional $2.3 million for wider regional projects.

The evidence for these changes derives from the official Ministry of Health reporting system and from the national sample surveys conducted between 1995 and 1997 by the Demographic and Health Surveys Program. One of the advantages of studying the subject of abortion in these countries is the quality of the information collected in the interviews with women. Abortions are seriously underreported in most countries of the world but in these countries where it has been legal, available and acceptable for so many years, the data seem to be reasonably complete. The estimates of both abortion rates and contraceptive prevalence based on the MOH and the DHS data are very close except in the Kyrgyz Republic where the recent MOH estimates of abortion are appreciably lower than those based on the DHS surveys. The speculation is that the DHS interviewers are recording some of the abortions that are increasingly occurring outside of the government health facilities and not reported to the MOH. Thus, the decline in the abortion rate in the MOH series for the Kyrgyz Republic is probably exaggerated while the DHS data for that country indicate a modest decline. Another factor contributing to the decline shown in the MOH series for the Kyrgyz Republic is the substantial out-migration of the ethnic Russian population who have higher abortion rates.

One of the questions pursued in the multivariate analyses is whether this association of abortion with Russian ethnicity is a function of religion or urban residence or other covariates, or whether it exerts an independent influence. The clearest evidence is for Kazakhstan where women of Russian ethnicity are more likely to have had an abortion and more likely to have had more than one abortion even with all other life cycle and socioeconomic covariates controlled.

In all three countries, having had an abortion is associated with age, number of children, wanting no more children and, particularly, with having used contraception. This latter association no doubt reflects both the intensity of motivation to control fertility and the strong likelihood of women who have a contraceptive failure to seek an abortion.

Nevertheless, the large majority of women who recently aborted a pregnancy were not using any contraceptive method when they became pregnant, although almost all reported subsequently using or intending to use a method. Having an abortion is also associated with living in urban areas and in specific regions, with current employment, and with higher socioeconomic status.

Abortion is used both for spacing as well as for limiting births. It is rarely used before marriage or before the woman has had at least one birth. Between 50 and 70 percent of women who have ever had an abortion have had more than one abortion.

Contraceptive use has increased rapidly in these countries. The IUD is still the principal method used, although the acceptability of the pill is slowly increasing. Judging from the attitudes of women in the Kyrgyz Republic, where we were able to include some relevant questions, the great majority of women are opposed to abortion and prefer contraception. Many women still lack knowledge about the pill and its health implications. But despite negative feelings about abortion (because of health and moral concerns), a third of the women say they would seek an abortion if they had an unintended pregnancy.

Since we have been able to classify women according to their reproductive characteristics and calculate the abortion rate for each subgroup, we can simulate what the abortion rate would be assuming various changes in the distribution of women across subgroups. At one (unrealistic) extreme, we can estimate the effect of eliminating all unmet need for contraception and assume a zero failure rate for all methods in use. This would imply a reduction of abortion in the three countries by about three-quarters. At the opposite extreme, if the availability of modern contraception were to be reduced, say by 20 percent, and these women were to use traditonal methods or no contraception, the abortion rate would rise by 27 percent in Kazakhstan, by 43 percent in the Kyrgyz Republic, and by 70 percent in Uzbekistan. We also assembled a best guess scenario which attempts to imagine the relevant changes over the next five years or so; this suggests a reduction of 25-30 percent in the rate of abortion.

It is important to understand that these countries are experiencing a rapid rate of social change that has included a dramatic reduction in the number of children desired and fertility rates fast approaching Western levels. It is also likely that premarital sex will increase among younger women in these populations in the future. Such trends can only increase the potential for abortion and the challenge and need for effective contraception. These trends will thus increase the pressure to reduce unmet need and contraceptive failure rates even further. There is still little use of effective modern methods of contraception such as the pill, sterilization, and injectables in these populations.

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APPENDIX

A MODEL FOR SIMULATING ABORTION RATES

The model requires information on the proportion of women of childbearing age who fall into various categories (i.e., contraceptive users, currently pregnant, etc.) as well as the pregnancy rates and abortion rates for each category. The categories and the estimated parameter values for the model are shown in Table A.1.

The failure rate for contraception is estimated simply as those women who reported that their last pregnancy occurred (in a recent 12-month period) while using a method, divided by the number of women currently using contraception. A separate rate for users of modern methods can be estimated but the small number of women using traditional methods does not provide a sufficient base for estimating that rate reliably. The failure rates in general appear, by international standards (Moreno and Goldman, 1991 and Russian Centre for Public Opinion and Market Research, CDC, and USAID, 1998), to be underestimated, especially for Uzbekistan. The abortion rate for women who had contraceptive failures is derived directly from the reported experience of the last pregnancy in the preceding three-year period.

Table A.1 Percentage of all women at risk of pregnancy by selected categories, and estimated pregnancy and abortion rates, Kazakhstan, Uzbekistan, and the Kyrgyz Republic

Category	Kazakhstan	Uzbekistan	Kyrgyz Republic
Contraceptive users			
Percent using any method	43.3	39.6	42.8
Failure rate	3.6	1.0	4.0
Percent using a modern method	33.6	36.6	35.3
Failure rate	3.1	0.7	2.2
Percent using a traditional method	9.6	3.0	7.5
Percent of failures aborted	77.6	64.6	70.2
Currently pregnant			
Percent pregnant 3 months or less	1.3	2.3	1.9
Percent aborted last pregnancy	35.9	12.3	27.2
Seeking pregnancy			
Percent want pregnancy in less than two years	7.1	7.9	8.3
Pregnancy rate	65.4	62.2	67.5
Percent of intentional pregnancies aborted	7.2	1.4	2.1
Unmet need			
Percent in need of family planning	8.1	8.0	6.5
Pregnancy rate	65.4	62.2	67.5
Percent of pregnancies aborted	54.0	20.0	45.0
Low risk			
Percent infecund or at low risk	17.8	12.8	15.5
Pregnancy rate	12.2	11.3	14.0
Percent of pregnancies aborted	33.6	20.7	23.6
Never had sex	19.9	24.9	21.2

The estimation procedure followed for currently pregnant women is to apply the abortion rate for all of the most recent pregnancies (in the past three years) to the number of pregnant women estimated to be less than four months pregnant.

Women who are trying to become pregnant are, of course, expected to have an abortion rate close to zero but changes in intentions and circumstances will contribute some abortions from this group. Their expected pregnancy rate is calculated by dividing the number of pregnancies to fecund nonusers by the number of fecund nonusers in the population. The abortion rate for this group is the proportion of intended pregnancies aborted by women in the recent past.

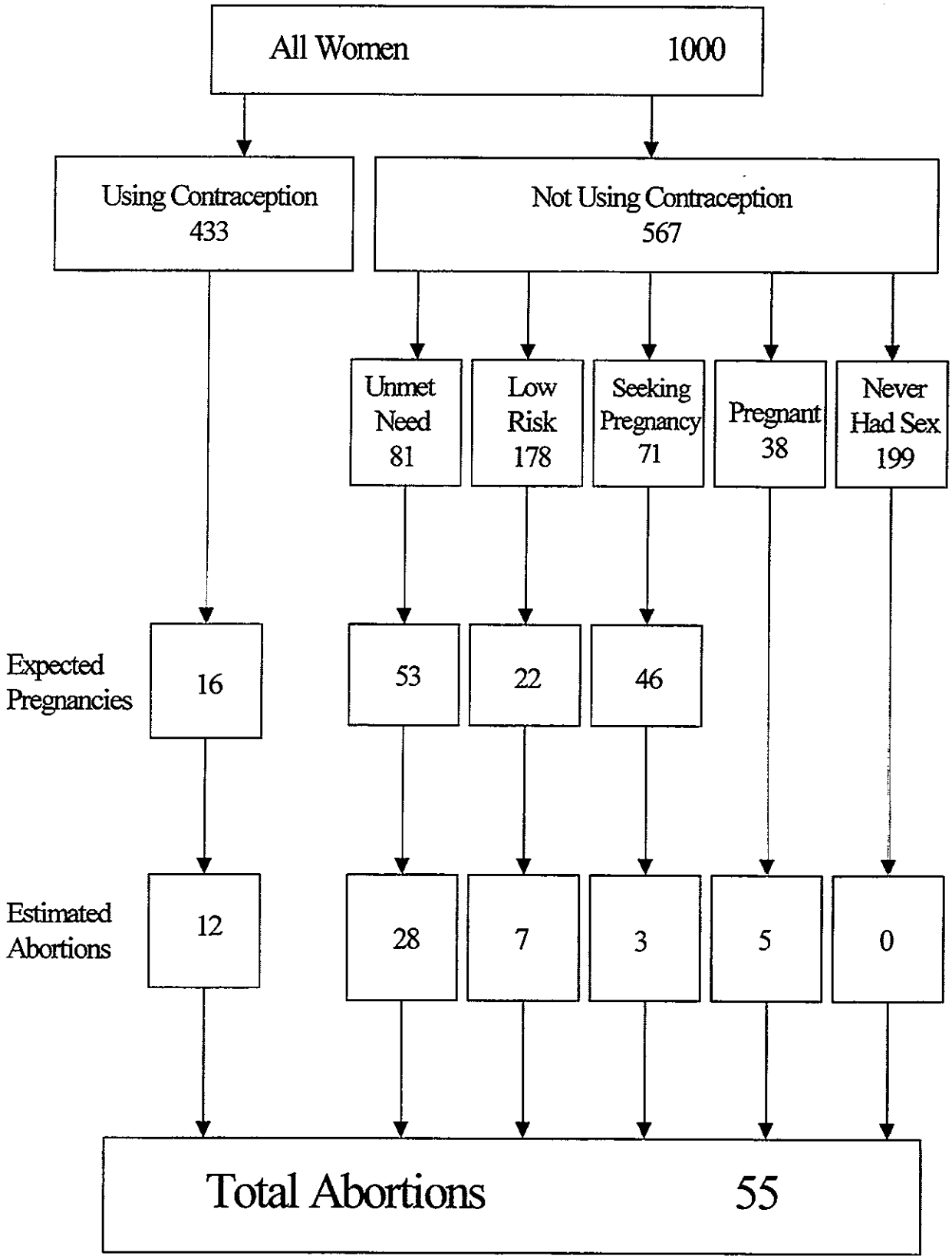
Women with an unmet need for family planning are expected to conceive at the same rate as those trying to become pregnant (which may be an overestimate). Their abortion rate is assumed to lie between that estimated for nonpregnant nonusers in general (which would be an underestimate) and that for contraceptive failures (which would probably be too high).

The remaining category of nonusers (with sexual experience) are women at low risk of pregnancy. This includes women who range from being physically unable to become pregnant to those who report that they are not using a method because of infrequent sex. Their pregnancy rate is estimated as the ratio of recent pregnancies of women at low risk to the number of such women currently in the population. Their abortion rate is derived from the recent abortion experience of women with these characteristics.

These estimates are very crude and have the disadvantage of combining past with current experience and do not yield precise annual rates. The actual rates and flows are diagrammed for each country in Figure A.1-A.3 in the appendix. Nevertheless, the reasonableness of the parameter values is supported by the results obtained from the model. The abortion rates derived from the model closely approximate the rates directly calculated using data from the DHS surveys: 55 versus 53 per 1,000 women of childbearing age for Kazakhstan, 20 and 19 for Uzbekistan, and 44 and 46 for the Kyrgyz Republic.

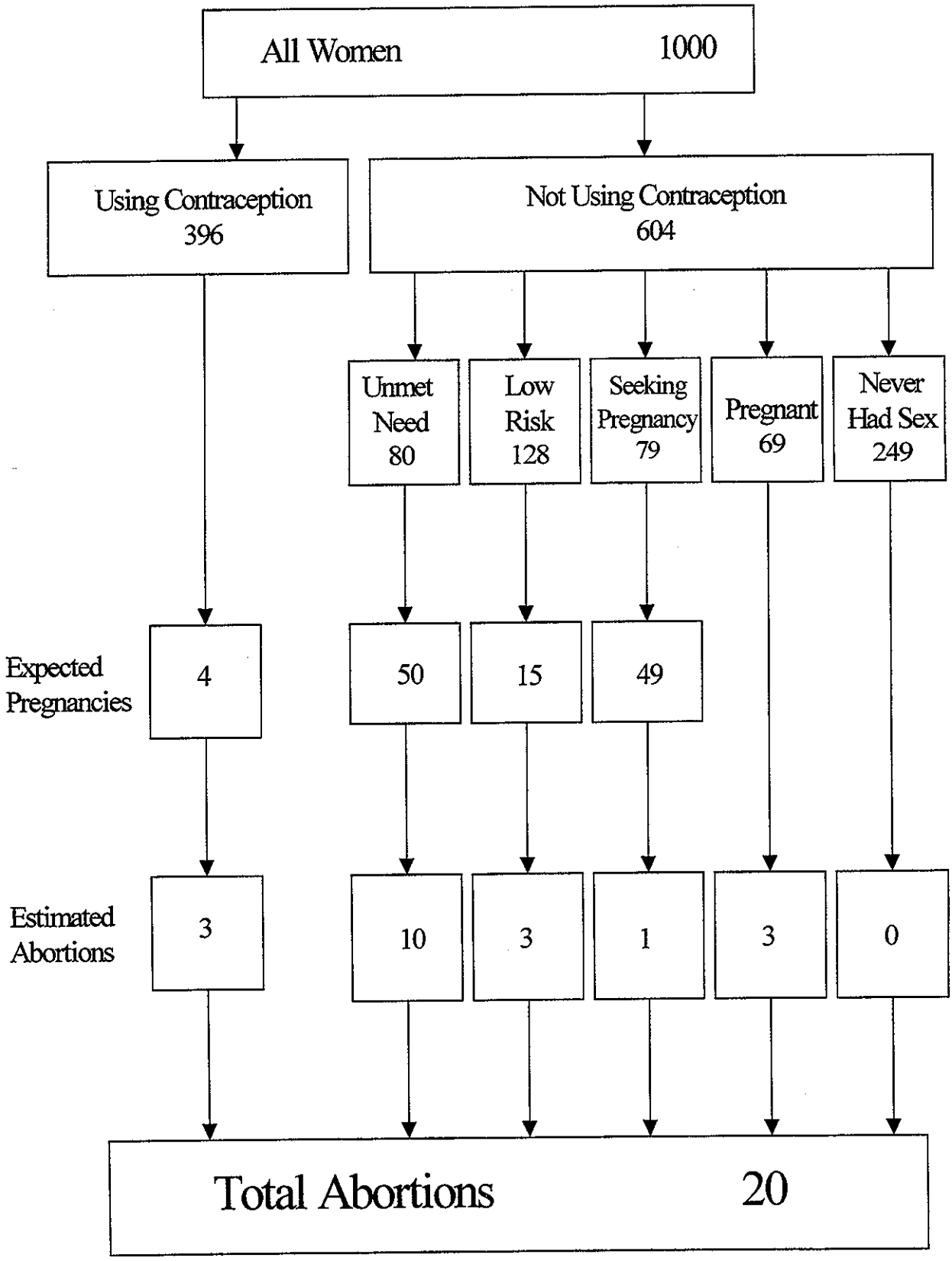
Appendix Figure A.1

KAZAKHSTAN



Appendix Figure A.2

UZBEKISTAN



Appendix Figure A.3

KYRGYZ REPUBLIC